THE

NINETEENTH CENTURY

AND AFTER

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THE ROYAL DECLARATION

THE hour has arrived when the nation has had to ask itself, What is to be done in the matter of the Royal Declaration?

To that question, which, in view of recent events, has become both pressing and practical, there are obviously three plain answers.

The first is—end it, the Protestant succession is transcendently secure without it. The second is—mend it, retaining what is effective and removing what is offensive. The third, the simplest and least possible of any, is—leave it alone.

It would be tiresome to reproduce here even a summary of what has been said or written in behalf of one or other of these solutions. Nor is it any part of the purpose of the present article to discuss the specific changes which would be necessary to render the formula of the Royal Declaration unobjectionable to all sections of the community. That is distinctly the task of the politician, and primarily, if I may say so, of the non-Catholic politician. The overwhelming majority of the population of this country is composed of Protestants, and it is natural that

they should seek to secure a Protestant succession. It is for them to discover and devise what they would deem to be indispensable for that object, which is so specially their own, leaving it to the equity and goodwill of the nation, as the supreme arbiter, to judge whether their solution has paid due regard to the rights and feelings of others. I may, therefore, confine myself to tracing a mere outline of the situation as it appears to Catholics, and to touching at least briefly upon some of its bearings which seem to be of even higher and more general interest.

There can be no doubt at all that the Royal Declaration is a subject upon which Catholics, both here and throughout the Empire, are wont to feel deeply and to speak strongly. There is nothing more vile than idolatry, and few things more contemptible than superstition, and no body of self-respecting people can be expected to remain passive and not to resent an official proceeding by which they are publicly and periodically stigmatised as superstitious idolaters. For that very reason, it is to us a real satisfaction to note that at the present hour we are dealing with a public which has evinced in many ways a generous willingness to appreciate our grievance, and a desire to do whatever can be safely done to redress it. There is thus perhaps little need that we, as Catholics, should assume the ungracious part of striving to force an open, or an opening, door, and certainly the righting of our wrong will be not the less welcome to us if it should come to us brought about, not so much by our own efforts and importunity, as by the good-feeling and fairness of our fellow-countrymen.

The universality of this readiness to consider favourably the Catholic claim has been pleasingly shown by the variety of the quarters in which it has been expressed. Anglican Bishops and dignitaries—amongst them some whose Protestantism is without fear and without reproach—have in this matter joined hands with the President of the English Church Union. Several of the leading organs of the Nonconformist Press have not been wanting in words of sympathy and support. If some of the narrower and more militant sections of Dissent have felt it incumbent to be hostile, one cannot but think that, just in so far as they are so, they are encamped on the wrong side of their own political hedges. A Catholic, who wished to be teasing, might well appeal to them in the name of their traditions and to their civic conscience not to lose the courage of their convictions at the very moment when they come to the highest quarter of application—not to deny to the King of England the measure of justice which they claim for the humblest school teacher—and not to cover themselves with the reproach of deserting their principles and of dropping suddenly their arms at the steps of the Throne, when waging their cam-

paign against 'tests and disabilities.' No doubt they would answer that it is the logic of self-preservation that renders them less than logical, and if that be so, then we can only trust that between the abolition of all test and disability as applied to the King, which we are not asking, and the immunity from public insult which, presumably, they would not deny us, there may be reached some half-way house in which men of good will can find a basis of conciliation. Be that as it may, it remains true that there exists throughout the country a practical consensus of public opinion in favour of providing a remedy, and the fact is one which Catholics are glad to recognise and appreciate.

It would be passing strange if so large a body as the Protestant population of this country did not, like all other masses of humanity, contain its quota of men who are nervously conservative or *intransigenti*. It is to be expected that such minds should prefer the security of an indispensable, albeit offensive, formula to the insecurity which they believe would ensue from its alteration or removal. It is not, of course, that they derive any particular pleasure from giving pain to their Catholic neighbours, but they think that in national, as in social, life there are grave and vital interests of the community at large which must be considered before the feelings of any individual section of it. They stand for a simple policy of 'hands off,' and for the suppression of any attempt to tamper or to tinker with the Royal Declaration. They would maintain it while the ages run just as it is without 'changing a syllable of it,' or, as one speaker in his devotion to the sacred formula picturesquely put it, 'without altering even a comma'!

The plea of these men, like that of most extremists, is too earnest to be convincing. They are not likely to succeed in inducing a twentieth century public to believe that the British Constitution and the liberties of Englishmen are actually in jeopardy unless the King, on a given day of his reign, uses vituperative language in speaking of the religion of Catholics. The mentality which can accept such a panic-bred belief would be surely an instance of superstition more real than any of which the King is called upon to accuse the millions of his Catholic subjects.

And here it is but fair to take account of an argument which has played a prominent part in the defence which they offer in extenuation of their attitude. They point out that in this matter of qualifying other people's religion, Catholics have no sort of right to be ultra-sensitive—or 'thin-skinned' as they express it—seeing that their own formulas in the denunciations of all the sects of Protestantism are far more violent and vehement than those

which are found in the Royal Declaration. They add that it does not lie in the mouth of those who at all times officially curse and anathematise all outside their own fold, to complain, if once or twice in a century a Protestant sovereign is found to use some unpleasantly plain terms in reprobation of their dogmas.

But evidently to put the case in this way is to miss the whole point, and to misconceive the whole meaning of the Catholic gravamen.

Catholics do not make a political grievance out of the mere fact that hard things are said about their religion. Naturally, it is painful to them to hear the mysteries of their belief condemned or reviled, but they know that such denials are in the ordinary course of things, and that the faith, like its Author, is a sign that is to be contradicted. Within recent times there lived—not a hundred miles from London—an estimable Protestant clergyman, who for many years, Sunday by Sunday, found spiritual food for his flock in making absolutely clear the identification of the Church of Rome with the Beast of the Apocalypse, and of the Pope with Antichrist. He was at heart one of the kindest of men, but his denunciations of our clergy—especially the Jesuits—were such that if only a tithe of what he said were true, most of us ought to be in penal servitude and the rest detained during his Majesty's pleasure. I have no doubt whatever that a very large proportion of his utterances fell fairly under the anathemas which our Canons and Councils pronounce against the deniers of our dogmas. That to him was not of the slightest consequence, while to Catholics his Apocalyptic applications mattered not at all. At least, they would find no difficulty in possessing their souls in patience, while he in all sincerity said what they felt they had excellent reasons for knowing to be untrue. If—what is most unlikely—the Archbishop of Canterbury and the Lambeth Congress, or the President of one of the Methodist Conferences, or the Moderator of the General Assembly, were to adopt the same tone and indulge in a similar tirade, we should indeed be surprised, and we might be tempted to look about for words in which to reply, but it would never occur to us to make such attacks the ground of a political complaint. For, clearly, it is the business of Protestants to protest, just as it is the business of the Catholic Church to affirm, under anathema, the truths of her faith against which they protest. She has done so from the days of St. Paul, and in the sense of St. Paul, which is that of affirmation under sanction of excommunication, and not of personal malediction, as some would ask us to believe. And, after all, we are quite separate and independent bodies. Neither the Anglican Archbishop nor the Methodist President, nor the Presbyterian Moderator, nor even the Apocalyptical preacher,

belongs to the Pope, nor does the Pope belong to them. It would be thus a simple matter of inter-church denunciation, and no one will carry a complaint to Parliament for such things, which have happened long before yesterday and may continue to happen long after to-morrow.

But with the King the case is totally different. He is not separate from us, nor we from him. In the liege-bond, the closeness of which we do not care to minimise, he is ours and we are his. He belongs to all of us, and we all of us belong to him. In the nation we are a family, of which he is the head. That a deliberate affront, and a particularly brutal one at that, should be launched at us in the midst of the household of which we are a part, and from the lips of him to whom we look up with loyalty and affection—it is *that* that stings, and it is of that we feel that we have a right to complain. At the very moment when, at the outset of his reign, our prayers are offered for him, and our hands are held forth to him in homage and cordial congratulation, he is made to meet us by a rebuff and by an insult, which is all the more galling because directed against that which we, as Catholics, hold to be dearer than ourselves.

I submit, therefore, that it is not a case of 'thin-skinnedness.' It is simply a matter of not liking to be gratuitously insulted, and that publicly and officially, by a Sovereign to whom we have given no offence, and for whom Catholics are as ready to shed their blood as any, no matter who else, in his Empire. It is an outrage contrary to our honour and to our rights, and one which is not less, but more intolerable from the fact that every Catholic knows in his heart that the King himself, all the while, wishes to hurt the feelings of no one, and that it is only a barbarous survival by which the bigots of the seventeenth century are allowed to put their vile language into his mouth. Our grievance, naturally, is not against the Sovereign who makes the Declaration, but against the Legislature which would perpetuate his obligation to do so.

Nor can it be said that it is merely a matter of sentiment. Were we to put aside all the glow of loyalty or warmth of personal feeling, and to look at the position in the wan light of philosophical state-economy, considering ourselves simply as a contingent of the constituent people and the King as the chief constituted authority, and our relations to him in the cold and hard concept of contract, the violation of our rights in such a Declaration would be just as glaring and as unbearable as before. We should still resent the injustice of being singled out before the rest of the Empire to be publicly branded as the votaries of superstition and idolatry. One of the highest interests of the Empire is that its citizens the wide world over shall be men

strong and keen in their instinct of self-respect. The Catholic population, by the law of its self-respect, is bound to demand the removal of this stigma, and not less truly the non-Catholic population, by all that they owe to their own self-respect, are bound to remove it.

In fact, a consideration more important than anything which bears on what we ourselves feel, is the Royal Declaration in so far as it concerns the Sovereign himself. Catholics feel strongly that they have the right to protest against it, not only for their own sake, but for the King's sake as well. If it is bad for them, it is worse for him. If it humiliates them, in a much more real sense it humiliates him. It stands to reason that it never can be a good thing for a King to begin his reign by insulting twelve millions of his subjects. An insult, in the measure of its brutality, soils the lips of him who utters it, and in doing so degrades the utterer much more than the one against whom it is uttered. We need not be Chinese to know that the one who 'loses face' is he who uses coarse and vituperative speech, and not the one to whom he has used it. It is abhorrent that the Sovereign of these realms should be placed in such a position, and forced to perpetuate an indignity from which his own sense of decency must revolt. And all, apparently, because certain bigots of the Stuart days could find no better way of heckling the conscience of their monarch than the adoption of the clumsy test-methods with which the suspicious Scotch Calvinists had tried, with amusing failure, to pin down to their shibboleths the soul of the slippery Lord Lennox.[1] Quite apart from the epithets levelled at the religion of his Catholic subjects, the terms of the Declaration are such as to make them hard reading for the King. For as soon as Catholics have been duly labelled as superstitious idolaters, the King himself has to drink his share of the cup of humiliation. He, the Fountain of Honour in these realms, has to stand before the great Council of the land and to give, what practically is and was advisedly intended to be, an assurance that he has actually meant what he has said—that he is not an unscrupulous trickster—that he is not lying or equivocating—and that in proclaiming himself a Protestant he is not a rogue who is deceiving the nation, with a dispensation from the Pope in his pocket to enable him to do so!

Not only the coarseness, but the puerility and futility of the whole proceeding are self-evident. If the King were so base as to affirm deliberately what he knew to be untrue when he pro-

[1] The formula of the Second Confession of Faith, signed by Lennox in 1580, although using much the same language as to the Mass and to dispensation, is probably not the basis of the Royal Declaration, but it must undoubtedly have existed as a precedent before the mind of those who originated it.

claimed himself a Protestant, how possibly could he be trusted when he declares that he has no dispensation? And, on the other hand, it is an elementary principle of Catholic teaching that all the Popes that ever existed cannot give a dispensation permitting any breach of the Divine Law, whether by lying or any other sin against the Commandments. But if, for argument's sake, the Pope could grant such an impious dispensation, then surely he could also grant a dispensation to deny the possession of the dispensation! Whatever way one looks at it, the Royal Declaration seems to be a monument not only of bigotry and vulgarity, but of ludicrous stupidity as well. It has become a duty, not for the honour of Catholics alone, but still more for the honour of the Sovereign, and most of all for the honour of the nation, to see that it shall pass into the limbo of obsolete abnormities.

It has been urged by some that the Declaration is singularly effective for its purpose, because the denunciation of the Mass is something which could not be made by a crypto-Catholic without apostasy, and that apostasy is the one sin which the Papacy could never condone or tolerate by dispensation.

Our grievance against those who adopt this view is that they do not carry it sufficiently far. It is quite true that the abjuration of the Mass is apostasy, and that the Church cannot permit by dispensation either that or any other violation of the Faith or the Divine Law. But, as any Catholic theologian would tell them, for a Catholic to receive Communion in an Anglican, a Methodist, or a Presbyterian Church is not only just as real an apostasy from Catholicism, and as absolutely beyond the dispensing power of the Church, but it is even more so, since such a Communion outside the fold would be to the Papacy the very seal and consummation of apostasy. The captive Mary, Queen of Scots, had the fact brought home to her when, in her perplexity, she thought for a time that some such dispensation might be obtainable from the Pope for some of her Scottish visitors.

There is, therefore, nothing to be gained by the coarse and contemptuous denunciation of the Mass that would not be secured by the fact of the King receiving Communion in any one of the Protestant Churches. Provided that the exclusion from the Throne of Catholics, and not that of advanced Anglicans, be frankly the objective in retaining the formula, then one cannot help wondering why such a provision should not furnish a simple, and easy, and quite satisfactory solution of the problem of the Royal Declaration.

Putting aside all question of the mere wording of the Royal Declaration, and the fact of its offensiveness, there comes into view a consideration of a far deeper and much more interesting

kind—namely, the underlying national need and purpose from which the Declaration is said to have arisen, and for which it is argued that it still requires to be maintained.

Here we happily get out of the region of mere word-wrangling and offence-giving into a higher atmosphere, in which we have to take count of great principles and of their adjustment to the national life, and to weigh certain issues which seem, in the interests of peace in our days, to furnish food for thought and reflection to all.

A writer in the leading organ of the British Press has devoted several articles to the subject of the Royal Declaration, and I may be allowed to use his position, which, no doubt, is fairly typical of that of many, as an object-lesson illustrative of the problem with which we have to deal. He has said much in which Catholics will feel constrained to differ from him profoundly, but, on the other hand, he has approached his subject with a degree of thoughtfulness and desire to get at the root-reason of things which give him the right to a careful hearing. I venture to summarise at least one of his arguments. He pictures Catholicism as a practically unlimited absolutism by which the Church, and therein the Papacy, is all in all and makes its demand to dominate the whole life of the nations in things both spiritual and political. As a system it is seen to reduce the episcopate and clergy to the status of Papal delegates, while kings and rulers become, in the measure of their docility, mere mandatories of the Vatican, bound to execute its dictates even in matters of temporal government. Such a condition of things would be plainly intolerable, and, as Gambetta once said, would be enough to 'make the guns go off by themselves.' For it would mean that men and nations would hold their natural liberties only on lease from the spirituality, and that they would have their domestic temporal concerns regulated by a supreme power outside their borders. It is clear, therefore, that there must be some resistance to such a system, if mankind is to preserve the dignity of its freedom and its self-respect. But, it is argued, resistance to it, just in the degree in which it is resistance, is and must be 'Protestantism,' or at least Protestantism in its essential principle. Hence the State, as a matter of self-preservation, must function as a force or fulcrum of resistance to such absolutism, and in doing so must duly be fixed in an attitude which is essentially resistant and Protestant, and must, therefore, make especially sure that the Protestantism or resisting-power of the Sovereign is publicly put beyond all doubt or question.

Here we have what may be called the philosophy of the Royal Declaration. It practically means that Christendom is face to face with two, and only two, alternatives—'Catholicism,' which

spells submission and servitude, and 'Protestantism,' which spells resistance and liberty. Generalisations like these are apt to lie on the surface of things, but to minds that look beneath it, the problem is not quite so simple as that. A distinguished Protestant Bishop, who is much too kindly to wish the retention in the formula of what is harsh or insulting to Catholics, has recently expressed his sympathy with this way of summing up the situation in sweeping antithesis—'Authority and liberty,' as he puts it—and has gone on to say that it is only when the Church of Rome drops her absolutist principles, ceases to deny liberty of conscience and the independence of the State, that she can fairly expect any substantial change in the gist of the Royal Declaration.

There may well be many who hold these views, not out of any particular animus against the religion of Catholics, but out of genuine zeal for the patriotic interests which are felt to be at stake. When they describe to us the actual position as appreciated by non-Catholics, and the current of feeling and fact which led up to the enactment, and still makes for the maintenance of the Royal Declaration, they are speaking presumably of what they know, and even though their plea should be *pro domo sua*, it would claim our respectful attention. When they go farther than this and describe to us the things of our own household—Catholicism as ruled by the Papacy, which is *our* position and *our* system—we who are Catholics and see things from the inside may fairly ask them in return to take certain elements of evidence into consideration. And these are chiefly seven.

(1) The view of the writer which has just been stated above rests mainly on a double assumption. First, that Catholicism is the system of unlimited absolutism which he has held up to his readers; and, secondly, if it be so, that any resistance to such absolutism is in principle identical with Protestantism. Here Catholics find themselves fundamentally at issue with the writer and his conclusions, because by the whole force of the knowledge of their religion within them they feel the fallacy which enters into both of these assumptions. Catholicism as it exists, and as we who are Catholics are conscious of it, is not absolutism over things spiritual and temporal, and if it were so in the sense described, it would not be 'Protestantism' but self-protection—and Catholic self-protection—to resist it.

(2) There are two ways in which to the Catholic conscience the Papacy is limited. One way is by its very claim to be the Vicariate of Christ. As ministering for Christ it cannot professedly recoil upon its origin. It cannot claim to unsay anything that Christ has said or to undo anything that He has done. Consequently all those things in the Catholic Church which are held to be of Divine institution—the Articles of Faith, the Divine

Law, the Orders of the Ministry, the Mass, the Sacraments, the Episcopal Constitution of the Church—are, indeed, within the supreme charge of the Papacy to safeguard them, to expound or regulate them, but are in themselves intangible in the sense that the authority of the Pope can never repeal or abolish or override or supersede them. His power is for edification and not for destruction in all that lies within that wide area which he claims to be the work of his Master. These things cover a large section of the spiritual domain, and they are perfectly well known to the mind and conscience of the faithful. There is thus even in spirituals a Divinely-sanctioned constitutional element, and by it Papal authority is necessarily limited from above and from behind. This fact alone might well give pause to any writer who may hasten to qualify the whole system of Catholicism as if it were an autocracy absolute and unlimited.

(3) The Papacy is also limited from within by the exalted nature of its mission. It deputises for a Christ whose 'Kingdom is not of this world.' Its authority is by the very force of the fact inside the spiritual order, and has for its scope the worship of God and the saving of souls. As a Roman Cardinal who might well pass for one of the most ultramontane defenders of the Papacy has tersely expressed it: 'The object of the Church is the glory of God in the salvation of souls,' and 'the authority of the Church does not go beyond what pertains to that object, and only in so far as it pertains to it.' ('*Ecclesia non habet ius nisi ad ea quae pertinent ad suum finem, et quatinus ad illum pertinent.*')[2] Men, even when they become Catholics, retain all their natural rights to the government of the family, the possession of their property, and to the mastership of the greater household of the Commonwealth which we call the State. This triple dominion makes up the temporal order, and in it, and over it, in so far as it is temporal, the Church or the Papacy has no direct jurisdiction. A temporal act, like any other act, may be a sin, and whatever is sinful or censurable falls under the judgment of the Church only as such. There is thus a whole region of human thought and action—the political government of the world—which, saving only in its aspect of morality, lies outside the purview and ingerence of the Church authority. As long as the Holy See recognises and teaches this fundamental fact it would surely be misleading to think of its control as unlimited absolutism.

(4) The witness of history stands undoubtedly for the Church's clear distinction of the two powers, the spiritual and the temporal. In the Articles to which I have alluded passages have been quoted from Pope Innocent the Third in which is

[2] Cardinal A. Mazella, *De Ecclesia*, p. 459.

asserted the superiority of Popes and spiritual rulers above kings and earthly princes. There are in the history of the Church plentiful instances of impressive speech of that kind. Archbishop Peckham spoke strongly in the same sense to Edward the First, and Archbishop Stratford, in his famous speech in Palace Yard, read the same lesson to Edward the Third. Numberless writers have expressed the same thought in one form or another from the days of St. John Chrysostom, whose eloquent words on the same theme are too well known to need citation. But where the defenders of the Declaration disappoint us is that they do not prove, but merely assume, that such passages establish the fact of the Church's domination in things temporal. What such quotations establish clearly is the teaching of the superiority of eminence or the super-excellence of the spiritual above the temporal order, a consideration very often impressed upon obstreperous kings or barons to enforce their obedience or respect. But they do not necessarily mean the superiority of superordination or imply that the Church, because it is generically higher than the State, has a right to dominate in the State's own sphere or to dispose of matters of the regality, as any great Canonist of the Middle Ages would have promptly told us. On the contrary, students of the Bullarium and of collections of Papal letters will know that even throughout the Middle Ages the Popes, while claiming for themselves the right to give judgments in the domain of morality and justice, consistently assume that the ultimate control of things temporal lies in the hands of kings or peoples and not in their own. Naturally a king may sin in his ruling of temporal things, and a king *qua* sinner against justice or morality is no more than the meanest of his subjects exempt from the Church's admonition or judgment or correction or censure. Even the Bull 'Unam Sanctam' need not mean more than that, as Doellinger has well explained. But that is not a superiority of absolutism or an arrogation of authority in both spheres, as the context of history sufficiently shows to all who study it.

(5) The Catholic Church from the beginning has taught the doctrine of the Two Powers—the Church having charge of things spiritual and the State having charge of things temporal. Each has its own sphere, and in its own sphere as such neither is subordinate to the other. If the Church or the Papacy as a universal power claimed to be supreme in temporals it would be a theocracy in the most mischievous and perverted sense of the term. On the other hand, if the State claimed to be supreme in spirituals it would be Erastian, which to a Catholic is one of the most loathsome of adjectives. As this demarcation of spheres, giving to God what is God's and to Cæsar what is Cæsar's, is part of the divinely ordered constitution of things, neither power can

claim to intrude into the domain of the other. Such an intrusion would be what Bracton, the thirteenth century English lawyer, described as 'putting the sickle into another man's harvest.' Now, if by hypothesis either power were to do so, it would be so far a duty of self-preservation for the other to defend itself and therein to resist, and such resistance, in so far as it is self-protective, would be reasonable, rightful, and Catholic. Such right of resistance is necessarily embedded in the very root-idea of natural justice and of the Catholic doctrine of the Two Powers. Consequently, in the hypothesis of any undue invasion of the temporal right by spiritual rulers, it would be both a reckless and fallacious generalisation to suppose that all such resistance to it must necessarily essentially be 'Protestant.' Catholics in being Catholics do not cease to be men, and in the matter of their temporal dominion they can never forfeit the right to self-protection and self-preservation. Hence the Holy See, by the mouth of Leo the Thirteenth, teaches that the two Powers—the Church and the State—are 'each supreme in its own order, and each has its own sphere, bounded by the limits fixed by its own nature and scope.'[3] If, then, it is the Papacy itself that thus authoritatively teaches all Catholics that the Church and the State are two Powers each supreme (*maxima*) in its own order, and that the sphere to which each is confined has fixed limits which are marked out—not merely by one or the other, but by the very nature and purpose of each—it is difficult to see how it could be said that Catholicism does not recognise the independence of the State in its own domain, or that it is an unlimited absolutism that seeks to subordinate the State to itself even in things temporal.

(6) There is much in the full-blown and far-reaching authority exercised by the Popes over Christian rulers in the Middle Ages that ought not to be confused with the essential Papacy, as taught by Catholic dogma and loyally held in the conscience of Catholics. In feudal times, and during the earlier and formative stage of the evolution of the nations of European Christendom, by general custom and consent or acquiescence of the Christian nations themselves, as well as by the common jurisprudence of the time, the Holy See was invoked as an international arbiter, and, in the name of international justice and right, it was also appealed to as a check upon abusive rule, and was asked to give declaratory and effective judgments on the unfaithfulness of kings to their coronation-contract and their subsequent forfeiture of the allegiance of their subjects. Such over-rulership, in so far as it

[3] 'Itaque Deus humani generis procurationem inter duas potestates partitus est, scilicet ecclesiasticam et civilem, alteram quidem divinis alteram humanis rebus praepositam. Utraque est in suo genere maxima: habet utraque certos quibus contineatur terminos eosque sua cuiusque natura caussaqua proxime definitos.'—Encyclical *Immortale Dei*.

was temporal and political, was a creation of the circumstances of the time and was not derived from the essential prerogative which we believe to have been given by Christ to St. Peter. It was accessory and extrinsic, and superadded by the act or assent of nations themselves and for their benefit. Even in the supposition that it had been assumed or arrogated by the ambition of the Popes, as hostile critics of the Papacy assert, the fact would not alter in any way, but rather confirm, its extra-Petrine and non-essential character. If a number of farmers in a parish should agree to refer for settlement some of their agricultural disputes as to boundaries, bargains, title, or tenure to their venerated parish priest as a common father, in whose wisdom and justice they had confidence, the authority so invested in him would be no essential part of his spiritual office, and it is shed when, in a more evolved stage of their economy, the farmers prefer to have such things settled in another way and cease to make use of his arbitration. In thus ceasing to have recourse to his temporal arbitratorship they leave his spiritual powers just what they were before they asked it. The feudal or quasi-feudal or super-regulative powers of the medieval Popes of the Christian States, however providential in their way and in their time, have, in so far as they are political, no essential place in Catholicism or in the concept of the Papacy. They represent an episode in the evolution of the nations. As such their exercise was believed to be beneficial by those most concerned, and some of the greatest historians of modern times have shared their opinion. What would not be beneficial would be their perpetuation to an age or to circumstances in which they are not needed or wanted. They came by the concession of the Christian nations, and they lapse by the tacit but practical reclamation of those who conceded them. Hence the argument that the Papacy has assumed a dominion in things temporal in the Middle Ages, and that the Papacy is always the same and would therefore repeat the incursion to-day if precautions like the Royal Declaration were not devised to prevent it, has no real meaning to Catholics. They believe that the essential Papacy—the Papacy as Christ made it and as the Holy See teaches it, in all its spiritual plenitude, as it was from the beginning—will remain unchanged to the end. But evolutions are never reversed, and the accessory medieval over-rulership with which the Papacy was clothed in other days, in so far as it was political or temporal, is something which is no more likely to return than the galleons or bows and arrows of the Middle Ages.

(7) The English people are asked to preserve the Royal Declaration on the plea that they are face to face with two systems, Catholicism and Protestantism, the one meaning absolutism and the other liberty—or, as an Anglican bishop has worded

the contrast, the one making for 'Authority' and the other for 'Liberty.' Absolutism is, as we have seen, disavowed, and as to Authority and Liberty, the antithesis is not between systems, seeing that both in their balance must co-exist in every true system, and it would be a bad case for the system if they did not. Authority is that which stands behind law, to make it, declare it, enforce it. But law, which is only another word for the uniform and rightful action of authority, is the very safeguard and palladium of liberty. If Catholicism represents authority, it is not its existence but its misuse that ever can injure liberty. Besides, this antithesis, with its pitting of Authority *versus* Liberty, and disparagement of authority in favour of liberty, really ought not, after all, to come to us from thinking Protestants, much less from Protestant prelates. All Revelation presupposes a revealing authority standing outside of ourselves and our private judgment, and consequently one whose affirmations, if they are Divine, must limit our personal liberty of doubt or denial. It is just because the affirmation is made by an Authority, and by a Divine Authority, that one feels that the limitation only enhances instead of trammelling our liberty. The Divine Word teaches us mysteries that we cannot understand, and we hold that believing the Word 'makes us free.' Hence the exclusive antithesis of Authority and Liberty ought, I submit, to be left to the rationalists, to whom it logically belongs. The quarrel of good Protestants ought not to be with the existence of such things as Authority, or even Infallibility, but with their delegation to human agencies, and liberty, as the rationalist very well knows, has to be defended not merely against the Papacy and the Catholic Church, but pre-eminently against the fact of Revelation, which in turn is the liberty of Almighty God to talk to His rational creatures, and tell them secrets of His life and work too sublime that they should be able to see the reason why. For instance, Christians, at least, may agree that if Christ, instead of ascending into heaven, had remained here visibly and audibly upon earth to be our Teacher, His Kingdom would still have been 'not of this world,' and men, we may suppose, would in all things have retained their natural right of temporal dominion. But Christ would have been in our midst as an authoritative and infallible Teacher. Our true civic and intellectual and religious freedom would have been none the less on that account. We cannot believe that freedom in any form is something which would necessarily require His absence. If that be so, it follows that the existence here below of authority and infallibility *in se* cannot be a menace to freedom as Christians understand it. At all events, we may be forgiven if we feel ourselves unable to believe that Christian liberty, in its august reality, is a blessing

which can only be secured or preserved by the exclusion of authority, and least of all by such sorry and ignoble expedients as the Royal Declaration.

These seven points have been stated here not at all as purporting to cover the manifold issues which arise out of the question of the Royal Declaration, but merely as representing, in a bald and crude way, the thoughts which have been suggested to the minds of some Catholics by the attitude and arguments of some of the Declaration's ablest defenders. If the very object of that defence be to protect certain vital interests of the nation from dangers which are believed to menace them from the side of Catholicism, then it would surely seem that the defence will be all the more strong and statesmanlike, and its missiles will be shot home all the more straight to the mark, if it takes count of Catholicism not as seen through the spectacles of extern and hostile traditions, but of Catholicism as it really exists in the minds of Catholics—Catholicism, above all, in its essential and permanent principle—for it is precisely by its principle that Catholicism grips the conscience of so many millions both under the flag and beyond it. If a fuller and clearer understanding upon all sides should, as it has done so often before, prove to be the path to a peaceable and workable solution, all who pray that the Empire may have peace in its strength will have reason to rejoice, and the Royal Declaration, like so many of the other statutes of penal days, will become to Catholics a historical reminiscence of a dead past, of which they only think to contrast it with their present freedom and the genial and kindly fairness which they meet in these days at the hands of their fellow-countrymen.

J. Moyes.

RECENT NAVAL POLICY AND PROGRESS

ALL great changes evoke opposition and prediction of ill results. History in every branch bears witness to this. We need not go back to the great Reform Act of 1832 to recall the struggles attending extension of the franchise in later years and the introduction of secret voting under the Ballot Act.

I remember the meetings to protest against the Disestablishment of the Church of Ireland. How a small but united band of military officers in the House of Commons resisted the abolition of purchase in the Army; though I believe their main opposition was in reference to the over regulation purchase money, and not to abolition simply? Did the Army as a whole favour the Cardwell reforms?

Measures dealing with the subjects mentioned have passed without causing disaster, and no sensible beings now desire to revert to the former state. Then the time of the Navy arrived to come under the same process. Of course, since the passing of the Great Reform Act of 1832 our Fleet has undergone changes of considerable importance, such as the substitution of sail for steam, rifled for smooth-bore guns, ironclads for wooden ships, and above all a permanent force of seamen for a haphazard system of recruiting; yet in a great many respects its training, distribution, employment, and organisation up to within the last ten years seemed to have more relation to the old wars than to future conflicts. Take the training for a naval calling. Now, what has from all time differentiated the seaman from the landsman is that the former should be able to manage and conduct a craft on the water whether that craft be propelled by paddle, oar, or sail, while the landsman has not the same skill, for knowledge of the propelling power and how to navigate constituted for centuries the seaman's art. When steam took the place of sail he deliberately surrendered an essential of his profession. Why? Partly because he did not like the newcomer, but mainly because his former friend remained as a favoured rival to the interloper. He allowed a special corps to do the steam propelling for him when required, and as a natural result took little interest in the new

science. The time came when he saw other operations besides propelling being performed by this new power, and this special corps increasing in power afloat. While clinging to the shadow the substance was passing away from him. A few officers had seen the part machinery was to play in the future, and made it a study, but the mass of combatant officers remained indifferent. Masts and sails had prior claims and continued to encumber all fighting vessels, though a positive detriment in battleships. Only one course could save the situation: radically to change the officer's training and make steam first and sail second. As he began to imbibe the old seamanship almost as a child, wherein lay the secret of his mastery of it, so he was now to be familiarised with steam-manship—if I may so call it—from boyhood. Of course this should have been done twenty if not forty years ago, but even now the change is assailed by many who will not, or cannot, see the merits of the new system. Only a strong personality could initiate and carry through such a measure.

Previous to and during the Russian War the great difficulty with our Fleet was manning it, and this became accentuated as pressing seamen fell before the force of public opinion; but no adequate substitute was provided. Many now remember the time taken to assemble the Baltic Fleet in 1854, and the curious medley which composed the crews of our ships. We had just previously adopted the engagement of Continuous Service Seamen and the training of boys for the Navy. The conditions of service were made such as to attract an excellent class of lads mainly owing to the prospect of a pension after twenty-one years' service. The actual engagement was for ten years, when a man could take his discharge or re-engage to complete time for pension. A large majority chose the latter.

On a ship being put out of commission, instead of being discharged as formerly, the crew, after a period of leave, returned to a receiving ship, or joined a gunnery establishment for instruction, and then awaited their turn for further service.

Now this system, excellent in nearly every respect, while providing for ordinary requirements, did not afford a reserve of men for commissioning a considerable number of additional vessels on an emergency. As no steps were taken to have a call in time of war upon men who left the Navy before completing their time for pension, they did not form a reserve. To provide this we created the Royal Naval Reserve from sailors of the Mercantile Marine. For an annual retaining fee they engaged to undergo so many days' drill in the year, during which they also received pay—and to serve in the Navy when called upon. A portion of this force was recruited from the coast fishermen under somewhat similar regulations. The strength of this Reserve,

which still exists, may be considered approximately at 25,000 seamen and stokers. Though a fine body of men, the main defect of this system lay in the qualifying drills being carried out ashore and not afloat in a ship of war. Discipline—and discipline is as important as drill—can only be acquired by contact. Drilling in a battery for a few days at a time will not give it. At least six months in a man-of-war is required, but as this is not feasible with merchant seamen, the regulations now prescribe three months in the Fleet as a necessary condition for a Naval Reserve man. Other defects alleged, that a large number of these men would be away when required, and that it would cripple the Mercantile Marine to take so many of their best men, are not substantiated, for we know a considerable percentage is always at home, and many more are on their way, while most shipowners state they would find no difficulty in filling their places.

But, after all, the only way to obtain an efficient reserve for any institution is to derive it from those who have served within its ranks. This applies to a Navy as well as to an Army.

At the outbreak of the Russian War of 1854 we had a long-service Army and no reserve for such operations. When the term of military service was reduced, we proceeded to form an Army Reserve, which has proved of great value in later campaigns, and is now of considerable strength. A few years ago the Navy followed suit. A reserve is being formed from men who leave after their first period of service and from others who are allowed to go after a still shorter term, provided they enter what is called the Fleet Reserve and engage to rejoin when required. The strength of this body will soon attain to that of the Royal Naval Reserve, with the advantage that all its members have served some years in the Navy. I can see risk in this measure only if the proportion of long-service men in the Fleet becomes unduly diminished, but of this, so far, there seems no indication. Even the shortest term of service permitted is longer than that of most seamen in Continental Navies.

A few words about the Coastguard, concerning which much misapprehension exists. In 1856 the Navy took over the duty of preventing smuggling on the coasts of the United Kingdom, providing officers and men for the purpose. The former consisted of commanders and lieutenants from the active list of a certain seniority, whom the change of life attracted, or who saw little chance of further advancement afloat.

To furnish the men, seamen of good character were allowed to enter the Coastguard, after serving eight years in the Navy. They did not join or form a reserve, as they still belonged to the first line, serving on shore instead of in a ship. They formed, in fact, a part of the active *personnel*, and were immediately avail-

able if required. To the married seaman the prospect of continuous employment at home, and living in a cottage provided for him wherever stationed, was very attractive. No difficulty is experienced in getting men for this service. Their principal duty is to patrol the coast to prevent smuggling on behalf of the Inland Revenue Department. For the Board of Trade they also keep and work an apparatus for saving people from wrecks when such happen in their district. It will be observed that neither of these duties tends to keep up their naval efficiency in its principal aspect, handling of weapons, for which we create and maintain a State Navy. The Fleet would prefer to see these men serving afloat, as that would give an additional number for manning. No doubt, in accepting this Revenue duty at a time when we had difficulty in getting men for the Navy, the Admiralty considered it would operate as an inducement to join, and did not realise the ultimate cost to Navy Estimates. It involved the acquisition of land and the provision of buildings all round the coast, the first charge and maintenance thereof being a heavy item. If the State is landlord, demands for improvements and repairs are continuous. Not long ago I went carefully into the charge to the Navy of maintaining this force, and it worked out at an annual cost of 80*l.* per man, as against 15*l.* for the Royal Naval Reserve and the Fleet Reserve man. Until recently we maintained about 4000 Coastguard men. In view of the heavy cost for so small a force, the Admiralty urged that this should not fall entirely upon the Navy. It is true we have instituted a system of coast signalling during Naval manœuvres for the detection of hostile vessels, which duty devolved upon the Coastguard, and for which they are eminently suited. This service has much developed of late, including wireless telegraphy, but it does not require 4000 men, so that the Admiralty have made reductions in the force, and been subjected to considerable criticism accordingly. It has, however, relieved Navy Estimates of a considerable sum, which is available for more ships or men. If we had any difficulty in obtaining men for the Navy and this shore work had an important influence in meeting it, the Navy might accept the charge, but as for every boy we want about six good lads usually offer themselves, this necessity does not exist. Another argument for retention of the present system is that as the State has to pay for a preventive service, what does it matter which Department finds the money? In these days, however, of keen comparison of our own and foreign Navy Estimates, the Admiralty are naturally desirous of eliminating all that is not strictly germane to fighting efficiency, and urge that the cost of such work should be borne by the Department concerned, as the Army pays the Admiralty for transporting its soldiers.

Negotiations have proceeded for a considerable time between the Departments concerned, and, no doubt, a satisfactory conclusion will be reached.

As sentiment enters largely into the consideration of this question, so it does also as regards the Marines. This splendid body of men originated in the manning difficulty. When no permanent force of seamen existed, considerable delay took place in getting crews for ships on an emergency, so Marine regiments were formed and kept permanently embodied, so that detachments could be marched on board immediately a ship was commissioned. Another advantage was the presence of a disciplined body of men on board, for the seamen, a rough lot then, were difficult to keep in order, and the Marines could be relied upon to suppress insubordination. They worked on deck—but not aloft—and always assisted at the guns. Armed and acting as infantry, they formed a landing party whenever required. The officers received a military training, so, on embarkation, could not share in the ordinary ship duties and take the place of lieutenants, if sickness or an action depleted the Naval officers on board. The manning question set at rest by the creation of a permanent force of disciplined seamen, the chief reasons for maintaining Marines no longer exist. The difficulty of finding duties for the officers when afloat, and high posts later on when they became colonels and major-generals, has led to the question of their abolition being raised. As regards the privates, however, naval development has removed many of their disabilities afloat by, for instance, the substitution of steam for sails. Recruited at a later age than boy sailors, the Marine's early training costs less. The Admiralty scheme for meeting the officer question is to consider the Marine Corps a special branch of the Navy, and induce officers to take it up after being trained in Fleet work, as they now take up gunnery, torpedo, and navigation. This must lead to great changes in the constitution of the corps, and I doubt their proving satisfactory. It would seem to me better either to retain the corps as formerly constituted or gradually to abolish it altogether, replacing with seamen. In the latter event a body of seamen riflemen could be created for small-arm duties and to constitute a landing party. Only those showing aptitude with the rifle and good shots would be selected. The officers to be trained as now proposed.

If legitimate doubts are expressed as to the Admiralty policy respecting the Marines and Coastguard, their action in closing or reducing several small establishments abroad seems quite sound. Most of these have arisen as the outcome of old wars and different strategical conditions.

The object of a naval base, large or small, is to enable a fleet

to be maintained and to operate in its adjacent seas. Lord St. Vincent, writing to Earl Spencer in January 1799, says: 'The only use of Gibraltar is to furnish the Navy of Great Britain with supplies, and thereby enable it to maintain the Empire of the adjacent seas.'

The operations usually comprised attack or defence of territory and commerce in face of an opposing fleet. Take the North Atlantic Ocean and West Indian waters. The continued presence there in past times of large squadrons led to refitting bases being formed at Jamaica, Bermuda, and Halifax. We continued to keep a squadron on this station, which at the time of the American Civil War again assumed importance, but for the last twenty years the number of ships out there has been insufficient to keep all these places actively employed. The same applies to Trincomalee, once a port of great importance from the support it afforded a squadron operating in the Bay of Bengal. Bases are acquired to suit the occasion. As we opened up trade with China and commerce flowed in that direction, a permanent squadron on that station became necessary, and we created a naval base at Hong Kong; for merchants had not then formed one for themselves which war ships could use. Now there exist at Hong Kong docks and shipping yards belonging to private firms which are available for State vessels also, and should obviate any great expansion of the naval establishment. Though an extreme case, suppose at some future time Arctic or Antarctic discovery led to some great impetus of trade in either direction, rendering it desirable to maintain warships in the locality, we should probably create a small refitting and supply base in some convenient port. As commerce increased, private enterprise would do the same to mutual benefit, but whereas the trade ships would be practically employed all the year round, work at the naval base would be intermittent as ships came in occasionally for supplies or repairs. The staff, however, is maintained on full pay day by day; hence, when such establishments are numerous, they become a costly item in Navy Estimates. There is, moreover, a continual demand for more staff, new buildings, and other improvements; while, on the other hand, any proposals for reductions from headquarters evoke local opposition. Drastic measures were needed to arrest this drain upon naval funds, to suppress establishments not absolutely essential, and to reduce others in accordance with modern conditions.

What a difference steam has made in naval strategy affecting the time taken to proceed from places one thousand, or even two thousand, miles apart! It is not only the speed, but also the certainty of direction, which has so materially modified the problems facing naval administration one hundred years ago.

England, Jamaica, Bermuda, and Halifax were weeks apart to the sailing ships, but now only as many days with fast steamships. No one asserts that naval bases do not confer advantages upon a fleet, but they should be judiciously distributed and not numerous, for if one does not exist in the neighbourhood of some contemplated operation, the commander of a squadron will create a temporary base and convey his stores there in a vessel taken up for the occasion. Of course, stores deteriorate more rapidly in some places than others, which is another reason against maintaining large stocks in certain parts of the world.

The conditions which have led to concentration of naval bases similarly affect the distribution of squadrons and individual ships. From a central position a force can be despatched to any required point, diverted to some other, or recalled, without being subject to delays which, previous to steam and telegraphy, often rendered communication with a place so comparatively close as Gibraltar a matter of weeks. For the same reason, as a blow can be struck with greater rapidity than before it is desirable to avoid undue dispersal of force. In maintaining a large number of comparatively weak ships on distant stations we had, it is true, excellent training establishments, but also the liability to embarrassment if war broke out, for most of the ships had little fighting value and a considerable amount of *personnel* was locked up in them which we should then want to employ in better craft. Certainly few of the vessels could assist in protecting ocean commerce, having insufficient speed to overtake the armed merchant steamers, while they could neither fight nor escape from an armoured cruiser detached on such a mission. If a slow cruiser is of little value to protect trade this equally applies to auxiliaries, for it is not to be supposed that an enemy would employ inferior vessels. Those, therefore, who demand extensive subsidies in this direction have not noted the great changes in the relative speed of warships and trade steamers. When liners traversed the ocean at eighteen knots an hour the majority of our cruisers could seldom exceed fifteen knots, and that only for a limited period, their dimensions precluding a large supply of coal. Steam speed in cruisers first received full recognition in the vessels designed by Sir William White, under the Naval Defence Act of 1888, when this attribute advanced to twenty knots, but under the same limitations. Merchant vessels had also progressed to a similar rate, and maintained it owing to greater length and weight. Now we see war vessels equalling and even eclipsing the trade ships in this respect. What now restrains the trader in the race is the question of expense, for at a high speed each additional knot means an increasing ratio of cost in construction and running, until a limit is reached when profit disappears.

It is marvellous and hard to realise that even a craft built almost

entirely for speed like the *Swift* should attain a speed of thirty-five knots (the Admiralty asked for thirty-six), equal to forty land miles an hour. To my mind, even more wonderful that a vessel like the *Indomitable*, burdened with some thousands of tons weight of armour and armament, should cross the Atlantic at a speed of over twenty knots an hour. As in the old days of sail the nimble privateer or frigate could usually overhaul the trading vessel, while the same quality enabled it to evade any ship of the line, so at last we are reverting to this condition with modern cruisers.

How to protect sea commerce under modern conditions has no doubt engaged the serious attention of the Admiralty, and I am not prepared to discuss it here. One thing, however, seems clear : that concentration rather than dispersal will produce the best result. An idea—often expressed—seems to prevail that foreign merchant steamers carry at all times an armament which at any moment enables them to be transformed from harmless traders into armed auxiliaries and commerce attackers. The guns and mountings, if not in place, are—it is said—in peace time stowed away in the hold, from whence in mid-ocean they can be got up like ordinary cargo and placed in position. As the modern 6-inch gun weighs seven tons, special lifting arrangements are necessary, but that is a detail! So is the fact that such weights so distributed below increase any rolling that the weather initiates. I remember the foregoing was freely said of the Messageries Maritimes steamers, when the relations between France and England had not reached their present excellent condition.

Based on hearsay, for no one ever came forward who had actually seen these articles on board, it probably originated in a common procedure of strengthening certain portions of the hull with a view to take guns and mountings if at any time it is desired to utilise a merchant steamer for war.

We now hear the same stated about German steamers, and the Admiralty is asked to station cruisers all over the world to counteract this proceeding ; to pounce suddenly upon the liner while she is undergoing transformation, or pursue her when it is accomplished. This does not appear practical.

Though the preceding are, perhaps, the most important points dealt with by Boards of Admiralty presided over successively by Lords Selborne, Cawdor, Tweedmouth, and Mr. McKenna, public attention is more attracted by any special advance or change in warship construction. The *Dreadnought* design no doubt presented novel features to the popular mind ; but if the evolution of the battleship since steam and iron superseded sails and wood is examined, we observe not only how inevitable had become her creation, but also how the ideas she embodies have prevailed at various times in abstract or concrete form.

As representing the principle of concentration, especially in gun power, she fulfils the ideals of Captain Cowper Coles, fifty years ago. His proposed ship had nine turrets, each containing a pair of guns. Concentration formed the leading feature of the original *Devastation* with four heavy guns in two turrets.

After the *Inflexible* of 1880 we departed from it for reasons unnecessary to relate here, and added a number of light guns to the four heavy pieces. The pendulum remained stationary for a time, then began to swing back towards concentration. In the *King Edward VII.* the first actual sign is observed. A bigger gun is added to the light armament. We observe a further and very significant movement in the *Lord Nelson* design, the light guns have disappeared and a smaller number of heavier pieces take their place for supplementing the four turret 12-inch guns. The 9.2-inch guns are of considerable weight and power. Several German battleships of comparatively recent date have for principal armament 9.4-inch guns. Hence the *Lord Nelson* only carried ten—five on each side. The pendulum is near the end of its swing, and the *Dreadnought* comes into being with concentration again the prominent feature. Similar progression marked the increase of dimensions from the 15,000-ton *Formidable* to the 16,500-ton *Lord Nelson*, and thence to the 17,900-ton *Dreadnought*. Believing this design to be right in principle, and its adoption only a matter of time, can we blame our naval administration for commencing the construction of this new type? Why, if we say the change was inevitable, should the initiative be left to others, with all the advantages which getting a start would give the nation first to build on these principles, for we no longer have a monopoly of rapid construction?

If another country had produced a *Dreadnought* while we steadily built *Lord Nelsons*, what an outcry would have proceeded from those critics who always find foreign ships, guns, and organisation superior to our own! Then it is said we boasted too much what the new type could do. This cannot apply to officials, who were mainly concerned to keep the design secret as long as possible. Even this is made a grievance in some quarters, because formerly a different procedure prevailed; but to let a possible enemy know the weapons to be employed against him is surely not business. What would be the procedure of France or Germany if either country came across a vastly superior rifle or more efficient field gun?

There are, however, persons who assert the equality, if not the superiority, of the *Lord Nelson* as compared with the *Dreadnought*, or, at any rate, that the increased size and cost of the latter did not give commensurate advantage. How do these vessels compare in gun attack opposed broadside to broadside? We have eight

12-inch guns against four 12-inch and five 9.2-inch guns. It becomes a question, then, whether the five smaller guns would effect more or less damage than four of the larger calibre. Can two opinions exist as to the answer? Where next is the superiority in other attributes of the smaller vessel? Certainly not in speed, for that is inferior. If in protection that will not suffice to win the action. It appears to me that for the additional fourteen hundred tons and 150,000*l.* cost we have derived substantial gain.

The fact of other nations, after due consideration, building *Dreadnoughts* and not *Lord Nelsons* may presumably count for something in the argument.

Advocates of a dual armament say, however:

We agree as to the necessity of carrying several heavy guns, but wish to associate with them a battery of ordnance lighter than the 9.2 inch calibre, so as to have a considerable number; at comparatively short ranges the hail of small shell will completely disorganise the craft not having this form of attack.

First note the difficulty of this combination. When the armament comprised only a pair of heavy guns at each end, ample space remained between them for the auxiliary battery. Fill it up with additional turrets and you are compelled to put the light guns—be they 6-inch or 8-inch—above or below the principal armament. Rejecting the former position as impracticable, the secondary battery is placed underneath, as in the first German *Dreadnoughts*. These guns are, therefore, too near the waterline for effective use in moderately bad weather. Experience teaches the value of a good command of fire at sea. If, moreover, the big gun asserts its predominance at long ranges, will not this be equally apparent at the shorter distances?

Putting penetration of armour aside, take the effect of shells weighing 850 pounds, as compared with one hundred or two hundred pounders. It appears to me that to give light guns any adequate value they must be in such numbers as to present insuperable difficulties to their installation. Facility of fire control is also reduced by a departure from the single-calibre principle.

Adverse criticism is directed against the Admiralty as regards its cruiser construction policy and the falling off in provision of new vessels for commerce protection since 1905. We had, however, built a considerable number of armoured cruisers just previously, and laid down several others, so that we now have about forty of that class under ten years old. The latest type of cruiser adopted, represented by the Bristol or City class, is a vessel of about 5000 tons, with a few light guns and no external armour. Speed twenty-five knots.

It seems doubtful if the required qualities can be secured with such small dimensions. Length and weight are essential to keep

speed against wind and sea while a large supply of fuel for passages at high speed is not possible on a small displacement. With an increase in size to 9000 or 10,000 tons, and a speed of thirty knots, we should get a vessel capable of overtaking any merchant steamer equipped for commerce destruction, and effecting her submission; our armoured cruisers must account for the more powerful craft of an enemy employed on this work.

The dividing line between the big armoured cruiser and a battleship is fast vanishing. It is immaterial what a craft is called. The main point is what she can do, and if capable of performing efficiently more than one function, so much the better. A group of specially fast battleships may at any moment be essential to success.

Few branches of science can show a greater record of advance during the last ten years than warship construction and equipment. It has the disadvantage that all classes pass more rapidly into a position of inferiority compared with new designs. As a vessel commences to approach this position almost directly after she is completed, the question arises when expenditure on repairs should cease and the money be put into a new ship. Under repairs we may include modifications such as changes in armament or new machinery; but experience is not favourable to this procedure applied to a comparatively old design. After a vessel is repaired, expenditure on her still goes on, whether she is put to or kept ready for immediate use.

This brings me to the question of scrapping and its application to a number of war vessels a few years ago. At that time our harbours were encumbered with a fleet of obsolete, or semi-obsolete, craft, rendering it difficult to find space for more modern vessels yearly increasing in size. This difficulty was probably the original reason for seeking another naval harbour, and for the selection of Rosyth in the Firth of Forth. As this could not be available for some years, it became necessary to locate obsolete craft elsewhere. No immediate or indiscriminate scrapping took place, except with a few that at once passed on to the sale list. As a matter of fact, to flood the market with old war vessels at one time would prevent a fair price being obtained. Most, therefore, had all stores and certain articles removed, steps being taken at the same time to prevent serious deterioration of other parts, in case of the vessels being required for any service previous to coming up for sale. Some have since been utilised again for auxiliary purposes; but the main objects were achieved, for, locating them at other anchorages, with only caretakers on board, we cleared our naval harbours, stopped unproductive expenditure, and liberated a number of men, who became available for newer vessels. It is said that the Admiralty

applied this process prematurely as regards several cruisers. It is possible that a few could have performed their functions a year or two longer, but it is better to scrap too soon than too late.

At one time we spent millions in tinkering up old vessels and starved new construction until we had almost fallen below a one-Power standard, and our ships in an important respect—speed—could only perform their duties with difficulty. It is due to those who undertake their country's defence that, when the necessity for use arises, their weapons should not be such as to bring humiliation upon themselves and their countrymen. The Navy, at any rate, can appreciate the efforts of its chiefs to give them only of the best. The result we see to-day is a Fleet in which hardly a lame duck is found.

We hear much also of stores being depleted and not replaced; even our stock of ammunition becomes suspect if a reduction is observed in the Ordnance Vote of the Navy Estimates.

Now it is neither desirable nor economical to keep a vast quantity of stores of an ordinary commercial character, which in such a country as ours are procurable at short notice to any extent. They deteriorate or become obsolete, necessitating large annual sales for a nominal cash return. A representative of a large private shipbuilding firm, who went round our naval establishments as one of a committee to look into the matter, was much struck with the enormous stocks we maintained of ordinary articles, with the result that a gradual reduction took place without replacement. When vessels are struck off the effective list, their stores, in whole or in part, go into the general stock, relieving to some extent expenditure on new goods. This applies equally to ammunition, of which a very large quantity is used annually for practice by the Fleet. Fluctuations in the Ordnance Vote are no criterion of the state of stocks, for, the larger portion of it being spent on ammunition, the laying aside of ships at any time releases projectiles and explosives, which then become available for practice, reducing the amount to be expended on new ammunition for this purpose. For ships in the first line a large stock is maintained intact at all times, the articles being such that they are not obtainable at short notice. It is not likely that naval officers at Headquarters would acquiesce in any undue depletion of this important store.

Nor can we imagine them carrying out the ordinary peace routine of a Navy, responsible to the country for its efficiency if war broke out, and not ascertaining that plans are prepared to utilise that Navy to the best advantage. Yet we are told there is no organisation for war at the Admiralty, and a want of preparedness, which, if correct, is tantamount to saying that every Sea Lord is neglecting his duty; for each has a share in such preparation. There seems to be an idea in some quarters that unless you

have a department called a General Staff, with a Chief of Staff in name and in fact at its head, you are utterly lost when overtaken by war. Presumably, therefore, if we changed the name of the Intelligence Department to that of General Staff, and added Chief of Staff to the title of First Sea Lord the blot is removed. For since its formation in 1887 the preparation for war and plans of campaign against all possible enemies have continually engaged its attention. In these matters perfection and finality are never reached. Conditions change almost daily, and plans must be modified to meet them. New problems arise and their solution demands continuous study. In our Navy War College they are brought before the minds of future Commanders-in-Chief, who thus ascertain the possibilities, as well as the limitations, of naval warfare. Our home squadrons by frequent exercises and manœuvres not only afford valuable lessons in strategy and tactics to those in command, but also test men and material in the most advantageous manner for engaging in hostilities. Actual experience at sea is the best training for staff duties, and the work of the British Navy affords opportunities for acquiring it unequalled elsewhere. Are we to believe full advantage is not being taken of all this experience?

Granted then great progress in naval equipment and organisation, the final questions arise, have we maintained the Fleet at an adequate strength, and are we making sufficient provision for the future? To give answer it is necessary to have clearly defined the naval force our own should be able to meet successfully, and, by general agreement, this has hitherto been fixed at a combination of any two other Powers. Justified by history, and in view of the important issues involved to the Empire by retention or loss of command of the sea, such a standard seems not only imperative but well within our capability. It was not questioned fifteen or twenty years ago, when it happened that the two next strongest maritime States were those with whom we had most points of difference. Yet thirty years previously we were allied with one against the other. Is it not wiser, therefore, to have a fixed policy unaffected by international relations, which small events might change at short notice? Some will urge the cost of modern armaments as a reason for abandoning this standard, or applying it in a modified form so as to reduce the expense. How, they say, can we compete with the greater populations to the east and west of us? They forget, or fail to realise, that while those countries are increasing within their borders, but have no support outside, we possess sources of strength external to these islands which will in a few years, if turned to good account, double the present power of the United Kingdom.

All those oversea dominions advancing with leaps and bounds

to greatness, who have given proofs of their patriotism and solicitude for the Mother Country in times of danger, are alike interested with ourselves in keeping open their sea communications, and this can be achieved only by dominant naval power. And what resources for this they possess! Take the seafaring community of the Dominion of Canada and the fishermen of Newfoundland. Where can Europe, apart from the United Kingdom, show such a recruiting ground for seamen? I know well the harbours of Halifax, Nova Scotia, and Esquimalt, Vancouver Island. They have all the conditions desirable in naval bases and for naval establishments. In Australia, Tasmania, and New Zealand the seafaring population, though not large, is growing, and these countries possess magnificent harbours where training can proceed throughout the year. What is required now is to organise all these resources on some common system which, while making due allowance for local sentiment and considerations, will allow all to work together for common defence. We want, in fact, an Imperial Fleet, in which all portions of the Empire are interested and have a share. Steam and the telegraph have annihilated distance, removing difficulties which existed thirty years ago. Instead, therefore, of talking about contributions, let us invite co-partnership and assemble a Council to discuss details. With a completed scheme put speedily into operation, we need no longer fear our capacity to maintain a two-Power standard, but could go beyond that if considered desirable by all concerned.

Lastly, how do we stand at the present moment? And here I come to what, in my opinion, is the one serious defect in the Naval policy of the last five years—the falling off in our warship construction during the fiscal year 1908-9. Lord Cawdor, when First Lord of the Admiralty, a few years previously had, in a memorandum, stated that an annual programme of four large armoured ships was required to maintain our Fleet at an adequate strength. His successor did not adopt this view, and our position seemed so assured that it could not be seriously impaired by a reduction from four to three battleships in 1906-7, nor by a similar provision in 1907-8; for we had under completion during that period, in addition to the new programme, the *Lord Nelson* and *Agamemnon*, the three *Inflexibles*, and the three *Shannons*. At the beginning of 1908 a critical time arrived. Germany, with a definite programme in hand, which had by 1905 given her a certain number of medium-power vessels, found herself in that year compelled to decide whether to continue this policy or, in view of our steady advance in size from *Formidables* to *Dreadnoughts*, to make a like advance. The decision was to continue the programme with vessels of the *Dreadnought* type. This

caused a temporary delay. The preparation of new designs, the change and development of plant, and the expansion of existing resources required time, but—as was to be expected—were carried out in the most thorough way, so that by the end of 1907 Germany had not only made a fresh start on a larger scale, but possessed the power of accelerating her construction when desired. If our Government did not know what was going on, they should have done so; but, in any event, they committed, in my opinion, the grievous error of reducing our programme in 1908-9 to two armoured vessels—the *Neptune* and *Indefatigable*.

The natural result followed. Germany pushed on and we had to jump from two armoured vessels to eight in 1909-10, with five more in the current year. These great fluctuations dislocate trade and are difficult to meet satisfactorily. We should have carried out the Cawdor programme. The argument often raised in favour of delay, that you eventually get a better article, is a fallacy and dangerous, for every vessel is obsolete to some extent on completion, and you may wait too long for an evanescent improvement. I consider the first-line life of a battleship as fifteen years from date of completion, after which she should pass into a reserve for a further five years before final extinction.

If we determine to maintain a two-Power standard, *plus* 10 per cent., to maintain squadrons at full strength, composed of vessels not more than fifteen years old, we require to lay down six battleships annually until 1916, replacing gradually the older cruisers and torpedo craft in the same way. This would enable us to face the future with confidence, and as each year finds the Fleet stronger and better organised than before, let us render justice to those whose efforts have conduced so much to this result, which may allow a Minister to-day to repeat the words of Pitt in 1796, when proposing defensive measures against invasion: 'Our Navy is the natural defence of this Kingdom in case of invasion. In this department, however, little remains to be done, our Fleet at this period being more formidable than at any former period of our history.'

S. Eardley-Wilmot.

POLITICAL SOVEREIGNTY AND A REFORMED SECOND CHAMBER

A STUDENT of jurisprudence, if he does not owe a direct apology for straying into the field of present politics, must at least confess to a certain nervousness in making the adventure. For one thing, he has to submit the comfortable axioms and definitions, which have generally been accepted by his predecessors, to the rough test of an undoubted crisis; for another, he has to show, if he can, that some of his scientific problems are vital issues which must be faced, and that soon. Such standing questions as the relation of representatives to constituents, or of the more literally representative Chamber to that which is less so, will be easily admitted to the general, if languid, consideration of the ordinary politician or man in the street. But the same authorities are less disposed to allow that rapid and unmistakable change is requiring most of such relations to be thoroughly reconsidered; and, on the other hand, that some of the old half-discarded theses are beginning to assume a disquieting reality and pertinence in the hard light of our present day.

The question, for instance, where the 'political sovereignty' of a State should be said to reside, looks academic enough to remain a monopoly of the jurist or philosopher. But when that inquiry develops into discussion of what is called 'direct legislation by the people,' we come at once on matter of interest to the most ordinary taxpayer or owner of property. Without further apology, therefore, I propose to consider the meaning of a 'political sovereignty,' particularly in England, and to discuss certain current opinions on the subject which appear to me false and tending to mischievous conclusions.

A few words will suffice to explain how the expression 'political sovereignty' arose. The well-known Austinian definition of a State or political association postulates an omnipotent Sovereign—in all modern cases a 'corporate' Sovereign or sovereign *body*, such as our Parliament of King, Lords, and Commons; to which corporate Sovereign Blackstone, in fact, expressly

attributes omnipotence in everything that is not naturally impossible.

We need not here go into the difficulties of Austin's definition of Law, or the propriety of the term 'Law' as applied to constitutional rules and principles. We may be allowed to assume that, in any political association short of an absolute tyranny, there are such rules and principles, either 'written' or customary, which do actually regulate and limit the ordinary sovereign body, even in its ultimate and highest function of legislation, as they do also determine, for the time being, the constituent parts of that sovereign body itself.

Attempts have been occasionally made to reconcile these facts with Austin's omnipotent Sovereign, by the supposition of a so-called *political* sovereignty, besides or behind the ordinary *legal* one, to which the Austinian omnipotence may be truly attributed. Now agreement with the canons of Austin is not, perhaps, at present considered so material as it once was. But the theory of political or ultimate sovereignty, combined with certain other assumptions, has been, and no doubt will be, used to justify measures which are, to say the least of them, detrimental or unpalatable to a large and important body of our community.

In England it is often assumed to be finally settled, as what Professor Dicey calls a constitutional convention, that the House of Commons is, in all matters of dispute with the other branches of the Legislature, ultimately to prevail. And, in accordance with this view, the same great authority considers that the body of electors to the House of Commons is the true 'political Sovereign' of England.

If this be agreed it seems to be, with many, a mere question of convenience rather than of principle whether we shall or shall not adopt in our legislation a *reference* to the vote of our electoral body like the Referendum now available in Switzerland, in the United States, in the Commonwealth of Australia; and whether this reference shall be confined to alterations in the Constitution, as in the last case, or extended to other legislation, as it practically is in the first and in some State Legislatures of America.

On the actual acceptance and working of the Referendum I shall have a few words to say hereafter, confining myself mainly at present to a discussion of the general positions above stated, and taking the case of England as a fairly typical one.

The ultimate prevalence of our House of Commons is sometimes claimed in the formula that 'the Will of the People ought to be obeyed.' 'The People' is often a mere rhetorical phrase; but, when reduced to a definite meaning in claims like this, it obviously signifies the Electorate to the more popular of our two legislative Assemblies.

It has, as is well known, been questioned whether the will, even of the People in this sense, is truly brought out under our method of settling questions by a simple majority of representatives of majorities. I do not, however, propose to enter here into the suggested attempt at giving each voter some voice in the choice of his member by schemes of proportional representation. These attempts only go as far as election: when it comes to the question of Ay or No upon a law or other measure, the will of the people as expressed by themselves would have of course to be that of a majority, arrived at through a Referendum to the Electorate at large. On the possible feeling and action of a discontented minority there may still, however, be something to say.

Now with regard to Professor Dicey's primary constitutional convention, on the ultimate general supremacy of the popular House, it must be distinctly recognised that this doctrine is not by any means positively held in other countries with two Chambers; that it has been directly questioned in our own; and that it is, to say the least, very considerably modified in our latest specimens of Constitution-making—those of Australia and South Africa. (I am, of course, in writing this, perfectly aware of the elective element entering into the Second Chamber in these two cases.)

If we allow, however, that the particular elected Chamber in our case *is* our highest ultimate authority, the question remains whether the 'political Sovereignty' of the Electorate is not of a decidedly qualified character. And this question is not so purely academic as it might at first sight seem. Obviously, two of the leading functions usually combined under the head of Sovereignty —the Judicative and the Executive—cannot, in the nature of things, be exercised, at least in our large modern States, by an Electorate. For the third function, Legislation, to which the other two must on the whole be regarded as subordinate, an Electorate is no doubt, within the limits of possibility, competent. Under modern conditions of registration and taking of individual votes it can be truly regarded, in Austinian phraseology, as a *determinate* body, capable of corporate action and therefore of imperative law-making.

In England no such capacity has as yet been either exercised or recognised. The 'political Sovereignty' which is, according to Austin, shared with the other members of our Parliament by the Electorate, but according to Dicey really belongs to the latter alone, is only in a condition of latent or very imperfectly potential activity. All it can do here is to impress its will upon the 'patent' or 'legal' Sovereign, on occasions of election when certain particular objects have been definitely prescribed by constituents in general. And, after all, strict obedience to such

alleged 'mandates' is not yet in accordance with the usually accepted view of a Representative's public duty. Their only practical sanction—no doubt a strong one—lies in the risk, or aggregate risks, of future non-election.

In cases where a legislative Referendum is actually established, the necessity of reducing any questions laid before a national Electorate to the alternative of Ay or No, without power of amendment, might not unjustly be regarded as reducing the so-called Sovereignty to a co-ordinate authority, shared with the body which must draft and settle the proposed law. This difficulty in 'direct popular legislation,' involving, as is obvious, important practical consequences, is inseparable from any legislative body which is by its nature incapable of discussion and amendment. It seems to be merely removed one step further back in cases where what is called 'popular initiative' is allowed to some larger portion of an Electorate—a principle upon the desirability of which we must remember that national writers themselves, *e.g.* in Switzerland and America, are by no means agreed.

Beyond all these questions, whether of juristic theory or practical detail, there is that of general advisability, in making this very considerable step; in passing from the discussion by Representatives, who must be supposed to have some special qualification and feeling of responsibility, to the decision on disputed and difficult matters of policy by the ordinary citizen. But this opens up a larger question still, to which all the others are subordinate.

Is it too late to ask whether the popular branch in a bi-cameral Legislature really is, or ought to be, under present conditions, the ultimate supreme power? It is a question surely not to be answered offhand, as one of natural right or of deductive reasoning from a theory of Sovereignty which is only one amongst others, but requiring a candid consideration of the individual Electorate, free alike from the dishonest flattery which is administered by demagogues to the Many and from the natural resentment aroused by unjust attacks among the Few.

The modern Electorate is sometimes likened to the old popular or national assembly of freemen. But there are enough important points of difference to render the comparison of little value for precedent or example. On the one hand, the Ay or No of an Electorate can be determined with an arithmetical exactness and endowed with a definite legislative power unknown to our Teutonic or Scandinavian ancestors. On the other hand, it may be seriously questioned whether the great part of our modern voters have either the freedom of individual opinion or the truly public spirit of the ancient freeman.

It is not my intention to enter into detail as to the different franchises and the different groupings of voters which at present

obtain in our modern States. Indirect election (*i.e.* by persons themselves elected for the purpose); representation of wealth by classification of electors according to their amount of taxation; differences in value of vote arising from inequality of number in electoral districts, etc., exist and will no doubt for some time continue to exist. For short, I leave out of the question an occasional multiple vote arising from qualification in more than one district. On the whole, the present tendency seems to be towards the principle of one man one vote, such redistribution as will reduce all votes to an equal value, and the requisition of little or no qualification beyond the attainment of years of discretion. These principles give, and are frankly intended to give, to the man of smallest means and most limited experience equal power, in appointing his particular part of the sovereign body, with the wealthiest and wisest. The diffusion of knowledge and political education among the different grades of enfranchised citizens varies very much in different countries; but it is undoubtedly true that the exercise of voting power does stimulate the intelligence and produce a certain average comprehension of political situations. Whether this goes beyond self-interest—whether the poorer, who will necessarily be the more numerous, have enough obvious stake in the present order, as a whole, to foresee danger from reckless legislation—is an obvious question, faced apparently with perfect confidence by those who are ready to reduce the franchise qualification to the lowest minimum or none at all. Rather, perhaps, the franchise is regarded, by such, as one of the vague 'natural rights' belonging to Man *quâ* Man—the *sole* enjoyment of which, by the way, is beginning to be inconveniently challenged by Woman. There is also to be taken into account the considerable number of those by whom an entire reconstruction of our present social system upon a communistic basis is contemplated.

The general objections to a practically universal franchise here expressed or implied may obviously be urged with still greater force against conferring direct legislative power upon a modern Electorate. I must now, however, pass to certain more particular results, upon the popular branch of a bi-cameral Legislature, which may be anticipated from present social conditions.

If the poor may be assumed likely still to outnumber the rich, the popular Chamber under the conditions to which we seem tending—one man one vote, one vote one value, and adult suffrage—must become rather specially the representative of the poor. Not that it is either just or rational to regard the poor, simply from the circumstance of poverty, as a purely self-regarding class, or a class at all, that is as necessarily consisting of uniform or homogeneous voters. But there are in our times other influences than poverty which tend to make them so. Direct taxation, as it has

been applied in England and is beginning to be applied elsewhere, is one. The exemptions, which used once to be grounded more on difficulty and expense in collection than on scantiness of means, are now based avowedly and exclusively on the latter ground. And the differential treatment, reasonable enough at first sight, easily mounts upwards, through diminishing allowances to increasing burdens, till we reach what will assuredly be felt as a crying injustice by those upon whom the highest scale falls—a feeling not diminished by the contemptuous disregard which there will usually be found popular orators to express and audiences to echo. But it is the total exemption rather than the differential treatment which most obviously tends to weld the poorer English voters into a homogeneous class of non-income-tax payers, and, through their representatives, to throw increasing national charges exclusively upon the remaining and minor part of the body politic. This is no doubt considered, by many humane and thoughtful people, desirable in our present state of society, and it may be admitted that unequal direct taxation may be necessary as a temporary expedient for cases of admitted urgency. At such an occasional 'benevolence' even the higher contributaries would probably grumble very little. But the same principle, arbitrarily employed as a regular mode of taxation, must be regarded as unjust by an important number of income-tax payers, and must lead to the bad effects of believed injustice—falsehood, evasion, transfer of capital abroad, class animosity at home.

To this differential treatment of direct taxation, in respect of its tendency to crystallise the poorer voters into a class, must be added the modern formation almost everywhere of a Labour Party. There is little question as to the increasing power of industrial associations, and their heads, over the conduct of labouring life generally. A conspicuous instance has recently been afforded us in the rejection of Sir Christopher Furness' Hartlepool scheme of co-partnery between employers and employed—the one method which gives some hope of putting an end to the ruinous alternation of strikes and locks-out. 'All such schemes,' said Mr. Keir Hardie, 'were opposed to the solidarity of the working-class movement.' And the fact, said Mr. Barnes, that 'the men would have come to regard their position at the works as secure, and thus lose touch with their fellows,' must outweigh any success of the scheme. Other reasons were also given for the unfavourable vote, but there can be no doubt that it largely resulted from the powerful influence exercised by the chiefs and organisers of the Labour Party.

Not the least important effect of this influence is its exercise upon the particular functions of Election and Representation. In spite of the nominal security given to the voter by the ballot, the

vote of any man who, from whatever circumstances, depends a good deal upon the opinion of his club or immediate neighbourhood, is generally pretty well known, and in many cases practically dictated. As to Representation, there will, I trust, always be, as there are now, some members of Parliament, returned mainly by operatives, who yet preserve their independence unimpaired, who truly consider and pursue the good of the country as a whole. But no one can read either the discussions and resolutions of Labour assemblies, or the addresses of candidates, Conservative as well as Liberal, to general meetings in the England of to-day, without seeing the prevalent tendency, often ostensibly professed, to give a distinct predominance to the class interests of Labour. That there was a time when these interests were unjustly neglected no one will nowadays deny; but to compensate that past injustice by a present one, inflicted upon the rest of the community, savours rather of oriental despotism than of a civilised regard for the general good. It is not here contended that the objects of a Labour Party are necessarily socialistic, in the sense of aiming at a compulsory equalisation of economical conditions, by graduated taxation or the nationalisation of means of production and distribution. But it is contended that those objects are often narrow and unpatriotic, as being avowedly confined to class advantages, and that, even when based on a theoretical philanthropy or patriotism, they have generally to be carried out by measures which, for the time, do prominently disregard the interests of other classes in the community. Again, it is perfectly clear, from avowal among the Labour organisations themselves, that the Labour candidate is generally understood to be pledged to certain stereotyped political aims, by engagements entered into with the constituents and backers upon whom he is often pecuniarily dependent. The immediate sanction, of withholding supplies, might, of course, be obviated by State payment of members; that of losing the position of a member altogether, on a future election, remains. In the majority of cases the Labour member will be truly a Delegate, and the terms of his delegation will be fixed by wirepullers or organisers.

The result of this general solidarity, among a class which must always be a numerical majority, and this organisation for specially class interests, is that the 'Labour vote' tends to become, before very long, a predominant power not only in the English House of Commons, but in popular legislative assemblies everywhere. This is a state of things already looked upon with apprehension in our own daughter commonwealths. A coalition of other parties, against Labour, has just been attempted, for instance, in Australia by a very able and far-sighted Minister, and has failed. (I should remark, by the way, that the Labour vote in that

Commonwealth is considered by competent observers to have been materially increased through the admission of women, married as well as unmarried, to an adult franchise.)

It may be that the territorial and social conditions of a new country, such as Australia and its provinces, may for a time excuse, or even justify, measures resulting from a Labour predominance which would not be tolerated in England. Nor should we forget that, in most of such States, the *written* Constitution, as interpreted by the High Court, provides a breakwater against extreme industrial or socialistic legislation, which we, with our omnipotent Parliament, do not possess. The decision of the High Court of Australia on the so-called 'Harvester Cases,' that what purported to be a taxing Act was really a 'regulation of industry,' and therefore unconstitutional, is directly in point.

To return, however, to our own case. The great danger of class legislation in England has been perceived by a sufficiently democratic observer, Professor Lowell, and has come nearer than when he wrote; although even then the Trades Disputes Act, of which he admits the injustice, had already been passed. The influence on the two old camps—Conservative and Liberal—of their 'more moderate elements,' in which he sees a corrective, has been of late conspicuous by its absence. A new cleavage of parties must be recognised, which is widening every day: a new theory of political Sovereignty—or, rather, the revival of an old one—is more and more obviously required.

The State, in the point of view here suggested, is to be looked upon not simply as an aggregate of individuals, but as an organic body, with different limbs, none of which can be set at naught, by some numerical majority, and starved or crushed out of existence, without grave detriment to the whole. It is in this organic body, rather than in any determinate number of electors or voters, that a very able recent exponent of Austin—Professor Brown, of Adelaide—considers the ultimate or political Sovereignty of England really to reside. Vague as this conception may at first sight appear, it not only depends, to my mind, upon a deeper and truer principle than that of counting heads, but it seems capable of distinct practical application in our present political crisis. There are, in any complicated modern society, many other unities of interest or common feeling which are regarded, not only by themselves, but by most educated men, as equally deserving recognition with that of Labour. The latter is apparently at present on the way to predominate in the more popular legislative assembly and its Electorate. Consequently, under the dual party system, which is at present prevalent, there will always be found leaders ready—at any rate so their antagonists will say and feel—to bid for the popular vote by the sacrifice of any interest repre-

senting only a minority or 'class.' The motive may be the base one above suggested, pure and simple: it may be largely mingled with a wish to redress the inequalities of fortune by legislative interference; it may amount to a scheme for entirely recasting human society by communising, with or without compensation, certain kinds of property, and ultimately abolishing private property altogether. The suffering of the victimised minority or class will be, in any case, the same; as will be the burning indignation aroused by injustice, particularly if accompanied by an ostentatious disregard of the rights and feelings of those who have to pay the piper but may not call the tune.

Such feelings are scarcely likely to be satisfied by appeal to a political Sovereign consisting of a momentary majority of Ay or No voters. Nor is it to be expected that a minority of any importance, constituted by persons of property, energy, and ability, will quietly submit to be 'taxed out of existence' or 'bled white,' as the elegant phrase of to-day runs. The present state of society may come to be entirely recast, but it is not likely that the change will be effected without something very nearly approaching to anarchy or civil war. If such calamities, or the deadlocks which lead up to them, are to be avoided, the 'classes,' to quote another mischievous phrase, must, as it seems to many of us, obtain or retain a definitely independent hearing and recognition, by the side of the 'masses.' This object might be best attained, according to some observers, by providing modes of proportional representation in a First Chamber, which will facilitate self-grouped constituencies; according to others, by making the Second Chamber an independent representative body, rather than a mere machinery for securing deliberation in all matters of sweeping change.

Now the voice of most persons possessing any knowledge either of contemporary politics or history is decidedly against a Single-Chamber Parliament, however improved by schemes of proportional representation; and any reduction of our Second Chamber, to the bare function of giving a little time for reflection to the First, is an approximation to Single-Chamber government. I venture therefore to maintain that what the present crisis demands is a reconstituted House of Lords which, while abandoning the hereditary principle or subordinating it to that of personal qualification, should, on the one hand, retain the permanence and continuity of the present body, and should, on the other, be primarily, though not exclusively, representative of other classes or interests than that of Labour.

It has no doubt been easy to criticise and ridicule the first attempts at such a representation of the different interests besides Labour, which make up with it the body politic, in a Second

Chamber, leaving the First to represent simply numerical majorities however composed. The difficulty more worthy of a statesman's powers is to face the questions before us and endeavour to solve them by common action, instead of this party battledore and shuttlecock game, of which most Englishmen are heartily sick. If such a representation as suggested is desirable, the contrivance of methods for attaining it ought not to be impossible—to goodwill. It would, moreover, be perfectly compatible, on the one hand, with the qualification of a limited number of hereditary peers by tests of practical experience and training, and, on the other, with the appointment of eminent commoners, as now, by the Crown at the instance of the Ministry. A deadlock between the Houses would be best avoided, according to some modern patterns, by an ultimate joint sitting and a definite relation of their respective numbers: more Englishmen, I believe, would prefer a retention of the Royal power of unlimited creation, which it is certain will never be used to overpower a serious and strongly supported Opposition.

In no case should the tenure of a Parliamentary Lordship be less than for life, if that independence and stability are to be secured which have universally been recognised by practice as among the principal objects of a Second Chamber. In this respect, any difference made between the various classes of Lords would not only be extremely invidious, but would lessen the responsibility felt by anyone exercising the right of appointment or election. But normal life tenure is not inconsistent with the common business principle that a seat should be automatically forfeited or suspended for systematic non-attendance.

Of course, it will be maintained that any setting up of an independent Second Chamber would mean a standing, organised state of warfare with the First. On the other hand, the present state of things is not very promising. A frank recognition of some such co-ordination of two different representative assemblies, with the power of bargaining on fairly equal terms, and the favourite English method of compromise, might commend itself to politicians not obstinately ignorant or purely self-seeking. At any rate, it seems to some of us a more hopeful course than preaching the ultimate Sovereignty of the popular Electorate, evading that Sovereignty as long as possible, and, in the end, enforcing it by a perilous use of the Prerogative or salving over the indignity of submission by the foregone conclusion of a Referendum.

With regard to the last-named expedient, a few words may be added to what has been said above on the purposes for which a reference to our Electorate would probably be employed, should such a measure be once adopted. With many of its advocates the Referendum seems to be contemplated purely as a Veto—a means

provided for 'the People' to reject a law which has actually been passed by the ordinary Legislature, on certain subjects, to be in some way specified, of a constitutional or otherwise fundamental character. But it does not appear, from practice elsewhere, that such references are always so confined or are naturally so confinable.

In the Australian Commonwealth the Referendum is at present limited to measures of constitutional amendment, and is primarily treated as a genuine Veto; but it *may* also be used, with the consent of the Governor-General, to carry such a measure over the head of a dissentient House. The same use of the Referendum had been previously adopted in Tasmania, after an original preference of other methods, in case of a deadlock on proposed constitutional changes. Its use whether for this or for more general purposes has been fully discussed and unfavourably commented on, from personal observation, by a juristic authority previously referred to, Professor Brown.

In Switzerland, which is, I think, generally quoted as the 'most favoured nation' in the use of the Referendum, it is certainly used in the main as a Veto, although, on the question whether a revision of the Constitution shall be undertaken or not, it is employed to settle a conflict between the two Houses of the Swiss Legislature. It is not necessary here to enter upon the question of a Popular Initiative allowed in Switzerland, which is matter of very divided opinion among the Swiss themselves, and is not very likely to be copied in England. With regard both to Switzerland and America, I would refer to the able chapter in Professor Lowell's *Governments and Parties*, on the Referendum and Initiative. His approval of the system as on the whole beneficial does not, I think, extend beyond the negative use, as Veto; and, so far as direct popular legislation has been employed in the State Legislatures of America with good effect, the good effect seems rather attributable to the inferior character of the State Legislature than to the intrinsic merit of the Referendum.

To return, however, to the most favourable instance—Switzerland—it is questionable whether any sound analogy can be drawn at present between this and other European countries. The political character and capacity of the Swiss popular Electorate are still, it is submitted, too unique for the institutions of that country to be closely compared with those of other political societies or their example to be safely followed. Moreover, if we may judge from the actual developments in Swiss political life, it would not seem that the conditions and restrictions, which it may be intended to impose upon the use of a Referendum, can be relied upon as stable, when the principle is once put in practice of a Legislative vote by an Electorate at large.

In England this principle has of late been rather specially invoked by one of its ablest advocates as against extension of the franchise to *women*, should such a measure be passed by Parliament. In this case the Referendum would probably operate as a simple Veto; nor, possibly, might it ever proceed here, as in Switzerland, to the development of a Popular Initiative. But its more frequent use with us would, I venture to predict, be in settlement of differences between the Houses of Lords and Commons, of course in favour of the latter. Those who consider that the House of Lords still has, and ought to continue to have, a distinctly substantive power in legislation, will naturally prefer the present system of amendments and compromises, in which the good sense and moderation of both assemblies has hitherto worked fairly well, even under the considerable real, and the more considerable imputed, faults of an unreformed House of Lords.

E. C. Clark.

CARE AND CONTROL OF THE FEEBLE-MINDED

THE Report of the Royal Commission shows that the number of mentally defective persons in England and Wales (apart from certified lunatics) is estimated at 149,628, or .46 per cent. of the population. Of these, 66,509 are at the present time urgently in need of provision, either in their own interest or for the public safety. In the latter figure, we are told, only such cases are included as are, in the opinion of a competent investigator, 'improperly, unsuitably, or unkindly cared for, or who, by reason of particular habits and characteristics, are a source of danger to the community in which they live.' If we add to the former figure the number of certified lunatics, the total number of the mentally defective[1] may be estimated to be 271,607, or 0.83 per cent. of the population.

A statement of the figures cannot of itself convey the full gravity of the situation, although even the mere figures are impressive enough. The great majority of these two hundred and seventy thousand people need support, care, and control, and can never pay back to the community, in any way, the equivalent for the time, energy, and money which must be spent upon them. Not only are they a burden upon the resources of this generation, but they are producing children who in turn will have to be supported and cared for by the labour and at the expense of the next generation.

The difficulty of supplying economical, adequate, and at the same time humane provision for such a vast number of helpless people presents a very grave problem. It will need most careful organisation and capable administration.

It is true that the certified lunatics are already provided for; but much of this provision is unnecessarily expensive, and in some cases of an unsuitable nature. The present chaotic state of

[1] The term 'mentally defective' has been used by the Commissioners to cover all kinds and degrees of mental defect, both amentia and insanity, both certifiable cases and those hitherto held to be uncertifiable, *e.g.* the feeble-minded.

affairs cannot be better described than by quoting the following paragraphs from the Report:

> There are numbers of mentally defective persons whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery, of much injury and mischief to themselves and to others, and of much continuous expenditure, wasteful to the community and to individual families.
>
> We find a local and 'permissive' system of public education, which is available, here and there, for a limited section of mentally defective children, and which, even if it be useful during the years of training, is supplemented by no subsequent supervision and control, and is, in consequence, often misdirected and unserviceable.
>
> We find large numbers of persons who are committed to prisons for repeated offences, which, being the manifestations of a permanent defect of mind, there is no hope of repressing, much less of stopping, by short punitive sentences. We find lunatic asylums crowded with patients who do not require the careful hospital treatment that well-equipped asylums now afford, and who might be treated in many other ways more economically and as efficiently. We find, also, at large in the population many defective persons, adults, young persons and children, who are, some in one way, some in another, incapable of self-control, and who are, therefore, exposed to constant moral danger themselves, and become the source of lasting injury to the community.

To remedy this state of affairs, the Commissioners recommended a new 'Act for the Care and Control of the Mentally Defective.' A full explanation of the provisions of this suggested Act would be quite beyond the scope of the present article, but this may be found in the Report of the Royal Commission. I only propose to take two of the fundamental ideas, and confine myself entirely to them. They are: Unity of Control, and Continuity of Control.

(1) *Unity of Control.*—The Commissioners recommend that there should be one single, central authority, to be called the Board of Control, to supervise and regulate all provision made for the accommodation, maintenance, care, treatment, education, training, and control of the mentally defective. Also that there should be only one local authority dealing with the mentally defective, which should be a committee of the County and County Borough Councils, and should be required by statute to make suitable and sufficient provision for all grades of the mentally defective. This should be a Statutory Committee, and should be called the Committee for the Care of the Mentally Defective.

The witnesses were practically unanimous in favour of one central authority for all grades of mental defect. At present four Government Departments deal directly or indirectly with mental defect. All of them issue different, and sometimes even contradictory, regulations, and great confusion is created. If consistency,

efficiency, and economy are to be secured in dealing with large numbers and all grades of defect, it stands to reason that there must be only one supervising authority. In order to carry this out, it is suggested that the proposed Act should contain all the necessary provisions of the Lunacy and Idiots Act, combined with any additional statutory powers necessary to extend the protection afforded by those Acts to all degrees of mental defect. It is further suggested that the Board of Control should consist of the existing Lunacy Commission, which should be enlarged and strengthened to meet the additional work which will be imposed upon it.

It is, however, locally, even more than centrally, that the need for one authority is felt. It is shown by the evidence that the mentally defective are perpetually coming into contact with different local authorities and are permanently cared for by none; that they pass from school to workhouse, from workhouse to prison, from prison to inebriate reformatory or charitable institution, and that between these short periods of control they have intervals of liberty, disastrous to themselves and to the community. This condition of things clearly indicates the need for one authority, exercising a continuous control.

I will endeavour to illustrate this more fully. The first time that a child comes into contact with a public authority is at the commencement of its school career, and even thus early in life the fact that there are at present two authorities who may deal with mental defect, but no one authority who must do so, often leads to the child receiving no training or control at all. A local education authority *may* establish schools for the mentally defective, but it is only in comparatively few places that this has been done. Only some 9000 children are receiving training in special schools, and the Commissioners estimate that there are 35,000 mentally defective children in England and Wales who are urgently in need of further provision.

For my present purpose—namely, to show the necessity for one authority for all grades—I want to consider the question of children of a low grade of mental defect living in a district where special schools have been established. The doctor who examines these children cannot ask himself, 'What is the best thing that can be done for the child?' He has to consider whether the case comes within the meaning of the definition[2] given in the Defective and Epileptic Children Act; that is, 'Is the child an imbecile or is he not?' If an imbecile, the Education Committee are not allowed to help him. I have seen many doctors examining children, and I do not think any two of them would agree on the point at which mental defect should be called imbecility; yet on

[2] 'Children . . . not being imbecile, and not merely dull and backward.'

this point hangs the fate of the child. Imbecility is an unscientific term, which has never been accurately defined. The real questions are, 'Does the child need care and control, and is he improvable by training?' No one answers either of these questions in the negative. With the hope of improving the condition of the child, the doctor may decide *not* to call the child an imbecile, and to admit it to a special school. I have hardly ever known a child, thus admitted, who did *not* improve. They do not learn to read and write, but they learn to obey a command, to sit still, to be clean, to know the names and uses of common objects, to knit, to sweep and dust—in short, they become more like human beings and far pleasanter inmates of their own homes. But then his Majesty's inspector visits the school; he takes a different view of the degree of mental deficiency which should be termed imbecility. He says that such children are imbeciles, and that they must be discharged. Very reluctantly education committees have to dismiss them. Several hundreds have, in London and elsewhere, been thrown back on the streets. All they have learned is lost, and once more they become a burden, and often a terror, to their families.

It may occasionally happen that someone, sufficiently interested, makes an attempt to induce the Board of Guardians, the second authority that can deal with mental defect, to take care of these low-grade children. But sometimes children rejected by the school doctor as imbecile are refused by the Guardians' medical officer because, in his opinion, they are only 'feeble-minded,' and he will not certify them as 'imbecile.'

This difficulty was pointed out as long ago as 1896, in the Report of the Departmental Committee on Mentally Defective Children. This Report suggests that the certificate of the medical officer of the school authority to the effect that any child is imbecile might be used for the purpose of admitting children to Darenth or to other certified institutions for imbeciles, as a difficulty had been experienced in obtaining admission to Darenth by means of a certificate from the medical officer of the Guardians. The Committee said: 'It is desirable that the authorities dealing with imbeciles should take the same view of imbecility as the school authority, and that no children should be left to whom both authorities refuse provision.' As the law at present stands, we cannot even send the low-grade cases to the residential training schools, where they would be suitably provided for, because the local education authority cannot pay fees for these children unless the institution to which they are sent is certified by the Board of Education, and, when so certified, the institutions cannot receive imbeciles. A visit to Starcross or Earlswood, two of the recognised idiot asylums, helps to bring home the existing con-

fusion. All the children in these institutions have to be certified under the Idiots Act. Yet they are just the same grades of mentally defective children as those educated in special schools under the Board of Education. It is hardly possible to conceive a greater muddle. A rich parent, who can pay fees, can obtain adequate training for a child, whatever the degree of the child's defect, and such a child will be certified as an imbecile. A poor parent cannot claim State aid for the care and control of a defective child unless he can induce the examining doctor not to call it an imbecile, or persuade the Guardians' doctor to call it an imbecile, in which latter case the father must become a pauper in order to secure provision for his child. Mr. Pooley, who gave evidence on behalf of the Board of Education, recommended that the powers of the Defective and Epileptic Children Act should be extended to enable education authorities to deal with all improvable imbeciles; but even this would not be sufficient, for disputes would at once arise as to which cases should be considered 'improvable.' Every case needs some degree of care and control; therefore it is clearly advisable that one authority should be responsible for the classification of the mentally defective and the organisation of the care, training, and control necessary for each degree.

It would, perhaps, be as well to enter a little more fully into the difficulties which beset parents who endeavour, through the Poor Law, to obtain assistance for their mentally defective children. Not long ago an effort was made in Birmingham to provide, through the Poor Law, for children of a very low grade of mental defect. The initial difficulty was to persuade the parents to apply. Relieving officers, through whom the application has to be made, are often discouraging and sometimes uncivil. I have known them ask the parent if he 'wants to become a pauper,' if he is not 'ashamed to put away his child,' or whether he does not think he ought to support the child himself; thus entirely ignoring the fact that the parent is using the only means available to secure care and control for his child. Again, the Guardians, if they are averse from receiving the child, can ask a weekly sum from the parents out of all relation to their weekly earnings. I have known the parents told that they would have to become paupers and at the same time pay 5*s*. or even 7*s*. per week; and I have known them withdraw their application in consequence. In two such cases the wages were only 25*s*. and 17*s*. per week, and there were other children to consider. It is not too much to say that, as things are at the present time, everything is done to discourage a respectable working man in his attempt to obtain care and training for a mentally defective child. If he does what it is obviously his duty to do, he is made a pauper for so doing. It is clear how much hangs on the unfortunate definition given

in the Elementary Education (Defective and Epileptic Children) Act, for by this definition a large class of trainable children were excluded from the benefit of the Education Acts without any other authority being made responsible for them. Wherever the fault lies—with the parents, the law, or the administration of the law—the result is disastrous; for these helpless children remain untrained and uncontrolled. Only those who have had to deal with an untrained imbecile know what a dreadful task the neglect of such children creates. Such details never appear in print, and may well be left to the imagination. To say that these children are mere animals is not to express the reality; they are far worse, for they have degrading and disgusting habits. The suffering of the families in which these children are brought up should also be considered. The working man's house is never one in which much privacy can be obtained. Few people realise what this means. The imbecile, however unfit to do so, must associate with the rest of the family. I have seen them tied into a chair or under the kitchen table. I have seen them kept almost naked in the back room. I have seen sane children neglected because the imbecile monopolises the mother's time. It cannot safely be left for one minute. I have known the mother unavoidably called away, to find on her return that the imbecile had burnt himself, another had put the cat on the fire, another had locked the baby up in the cellar, another had undressed herself and rolled under a horse's feet in the street. Many escape from home, causing hours of anxiety to their parents before they are brought back by the police. To complete this description, we must bear in mind the fact that the parents of such children are frequently themselves mentally defective, or highly excitable, unstable, and neurotic individuals. I have hardly ever seen a mother that I should consider a suitable person, either by capacity, temperament, or education, for the training of her own mentally defective child. It may, perhaps, be argued that for these low-grade cases no training is possible. But no one who has been in America and seen the colony at Waverley, in Massachusetts, will ever use this argument again. There I have actually seen low-grade cases doing a fair day's farm work under supervision. That they can be trained to do so is a fact now happily beyond dispute.

The neglect in England of these low-grade defectives causes downright cruelty both to parents and children. The recommendations of the Royal Commission, if carried out, would put an end to this neglect, for there would then be one authority under statutory obligation to provide training and care for all grades of the mentally defective. Such children would be classified, and sent at once to the particular school or institution where the training given was most suitable for their capacity.

The need for one authority is even greater when the mentally defective reach sixteen, at which age they must be dismissed from school, whatever their mental condition at the time. There is no certain means of handing them on to any other authority, though at this period of their career they are urgently in need of continuous supervision to prevent them reproducing their kind. It should be remembered that they have received a very expensive education out of public funds, and that the whole of this is entirely wasted if all control over them ceases when they leave school. Yet the difficulties of obtaining control are almost insuperable.

In the first place, there is the difficulty I have already stated—namely, that of persuading the parents to apply for assistance from the Guardians. This is especially difficult when the parents belong to the respectable working class, or to any class just above that, in which the family income varies from 30*s.* to 3*l.* a week. Such families cannot afford 8*s.* to 12*s.* 6*d.* per week to maintain one child in an institution without doing injustice to the child's brothers and sisters. But when one suggests applying to the Guardians the usual answer is 'No! we have never sunk as low as that. We have always kept clear of the Poor Law.' A creditable feeling, and one which it is desirable to encourage. Yet for the great majority there is no other way available. Very few have sufficient interest or sufficient time to obtain admission for a child at any of the idiot asylums on the voting system, and it is hardly necessary to state that they cannot pay the full fees at these institutions. It would be a good thing if everyone interested in the permanent control of defectives could actually experience what these parents have to go through to obtain it. They have, in the first place, to apply at the same hours and at the same office as an ordinary pauper. It is not by any means certain that they will be received with civility. I do not blame the officials; they would need more than the average discrimination to see at once the difference between these respectable parents and the indolent and the work-shy. But I blame the system, for exactly the same process has to be gone through in both cases. It is not pleasant to wait one's turn seated on a bench with unwashed and verminous paupers; and this process has sometimes to be repeated twice before the Guardians decide.

It should be clearly understood that these applications are by no means always successful. In many cases I have met with complete failure. Some Guardians insist on making previous admission to the workhouse a condition of admission to a home or colony. This is heartrending to respectable parents, and often leads them to keep a defective child at home under quite insufficient control. Surely no more need be said to show that it is not wise to leave the care and control of defectives to those who

administer the Poor Law. Accustomed as they are to deal with the work-shy and the waster, hampered by regulations applicable only to paupers, they do not—perhaps they cannot—discriminate, and the same methods are used for those parents who apply to them simply on account of their child's mental infirmity.

Let us, however, suppose that the two initial difficulties have been overcome; that is to say, the parents have been persuaded to apply to the Poor Law, and the Guardians have been persuaded to maintain the case in an institution. There is still a third difficulty, which often proves insurmountable: no vacancy can be found in any suitable institution. The accommodation available is ludicrously inadequate, and will remain so until it is the duty of some authority to provide it. With all these difficulties to contend with, it is not surprising that the effort to obtain suitable provision for defectives on leaving school is often abandoned. They are lost sight of until they come once more before the public in the police court, in prison, in a maternity ward, or a lock hospital.

All these difficulties will, however, disappear when once the recommendations of the Royal Commission have been adopted. For then the Committee for the Care of the Mentally Defective will be under statutory obligation to make suitable and sufficient provision. They will be the one authority responsible; there will be no question of soliciting the aid of a second authority midway in the career of a defective, and no appeal to the Poor Law will be necessary.

(2) *Continuity of Control.*—We now come to the second of what I have called the fundamental ideas of the Report. The Commissioners recommend that, subject to certain safeguards, the Local Committee for the Care of the Mentally Defective should be empowered, in cases of mental defect not receiving suitable training or not under suitable parental or other control, to resolve that all the powers and rights of the parent shall vest in the Committee until the child reaches the age of twenty-one. Also, when such mentally defective persons reach the age of twenty-one, the Committee are to report as to their condition to the Board of Control, who will decide what further steps shall be taken with a view to the continuance of such persons under care and control.

The two important new powers suggested are (1) to compel the parent to allow a defective child to go to a residential institution if suitable training cannot be provided at home, (2) the power to detain such a defective in an institution after school age, if he or she is unfit for liberty.

Sufficient safeguards against the improper use of these powers

are provided, and the parent has the right of appeal to a court of law. Neither of these additional powers involves any new principle in English law. Both are extensions of existing laws. Already under the Education and Lunacy Acts the principle has been recognised and adopted. If children are blind, deaf, or epileptic, we do not allow the parent to refuse to send them to residential schools, for it is clearly recognised that parents have no right to deny their children the special training necessary because of their infirmity. Of all defectives, the child suffering from mental defect is most urgently in need of suitable training, both for his own sake and for that of the community. But at present it is the only defect in which there is no power to coerce an unwilling parent. The position is highly illogical, especially when on inquiry we find that almost the only parents who object are those who are themselves mentally defective, criminal, ignorant, or on the verge of pauperism. The detention of cases in institutions after the age of sixteen would be merely an extension to all cases needing care and control of the powers now in force under the Lunacy and Idiots Acts.

The first part of this article dealt entirely with the parent who is anxious to obtain suitable provision for a defective child, and showed the difficulties which beset him. In this part we turn to a different aspect of the question, one which affects a considerable percentage of cases and includes the most uncared-for and the most vicious. As I have just said, they are the children of parents who are often themselves mentally defective, and who in any case are of such low mental equipment that with them patient argument and persuasion are of no avail. They have not sufficient reasoning power to see that their children are abnormal, or why it is necessary that they should be trained and controlled in any special manner. A few of the best of such parents have a blind, instinctive affection for their children, which makes it impossible to persuade them to allow a child to leave home. They have none of the unselfish foresight which enables educated people to sacrifice natural inclinations in view of the future. Other parents, and I am afraid these are more numerous, look on each child as a source of additional income, and will not hear of parting with them, because they are always expecting that they will earn something. It makes matters more difficult when this expectation is for a time realised. A large number of such children earn small sums of money both before and after they leave school, but they rarely keep any situation long, and their total earnings, if averaged over a long period, would be almost infinitesimal. It is not surprising that parents of such a low grade of intellect, and such a low standard of manners and morals, should not be able to foresee or appreciate the gradual degradation which an unprotected street

life means to a defective child. Such parents are often drunk, often in prison, often in the workhouse themselves, and naturally are not shocked at the idea of their children following in their footsteps. Arguments and appeals based on the welfare of the child are therefore presented to deaf ears. The older the children grow, the more difficult it is to persuade the parents to let them go into an institution. 'It's time she earned something,' is often the only answer obtainable, and even when a feeble-minded girl has produced an illegitimate child for the family to support, it is generally regarded merely as a bit of bad luck, and never as an argument that she should be placed under supervision. It is absolutely certain that unless statutory authority is given to force such parents to part with mentally defective children and to place them under suitable care and control, they will still go uncontrolled and uncared-for.

A rather interesting piece of evidence on this subject is supplied by the experience of the Birmingham Education Committee with regard to a home for the training and permanent care of the mentally defective, to which they decided to send their most urgent cases. In spite of a personal visit from the Superintendent of Special Schools, who made every effort to persuade them, 25 per cent. of those asked refused. I give particulars of the first five whose parents refused, as nothing could show more plainly the need for compulsory powers:

No. 1. Girl, aged eleven. Illegitimate; immoral tendencies; rather nice-looking; dishonest; very bad home; mother and father drunkards and very immoral; has a half-sister whose father is in prison for burglary. Both father and mother slightly mentally defective.

No. 2. Boy, aged twelve. Illegitimate. Grandmother, mother and aunt feeble-minded; another aunt a prostitute. Boy always neglected, half-starved and in rags, and constantly playing truant.

No. 3. Boy, aged twelve. Very poor home. Boy kept away from school months at a time to work. Parents repeatedly fined, but with no effect. Would improve under regular instruction.

No. 4. Girl, aged ten. Very poor home. Child always half fed, dressed in rags, neglected and dirty. Often kept from school for want of boots.

No. 5. Girl, aged fourteen. Mother feeble-minded and complains that she cannot control the girl, and the district in which they live is a very bad one, where the girl is exposed to every temptation. She is a very pretty girl, with marked immoral tendencies.

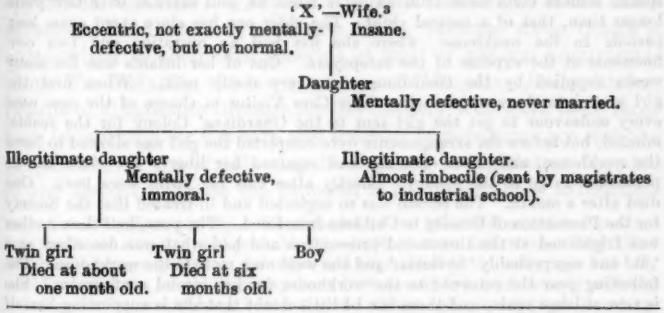
In such cases as these it seems folly to hesitate to use compulsion on the score of interfering with the authority or responsibility of the parents.

Power to enforce residence in a boarding school for the mentally defective would, of course, be of very little use without the further power of detaining cases after school age in a suitable institution, if they are still unfit for liberty. It is when school age is over that most trouble is likely to arise with the parents.

They visit the institution, see their boy or girl doing useful work, and, perhaps naturally, conclude that such work could be performed at home. The Superintendent of the institution knows perfectly well that liberty spells disaster to the inmate, but the parents insist, and there is no power to detain against the parents' wishes. Until we get this power of detention, most of the money spent on homes and institutions for defectives will be entirely wasted. When we take degraded girls out of the slums, girls who are steadily deteriorating physically—when we put them in institutions, feed them up, give them medical treatment, and improve in countless ways their bodily condition, we are, I fully believe, increasing their fertility, and such girls, nursed and tended carefully through the most critical period of their lives, and turned out healthy animals, will produce more children than if we had left them to themselves in the streets. They all go out far more attractive, and perhaps less noticeably defective, than they came in. Mentally they have hardly improved at all—in self-control not one atom. It has been proved over and over again that it is no good at all—it is worse than useless—to place mentally defective children under care and control until sixteen, and then allow them complete freedom. Yet this is exactly what is happening under the Epileptic and Defective Children Act, and under the Industrial Schools Act as applied to mentally defective children; and this must go on happening until we can persuade the Government to give us powers of detention and thereby make the control of the mentally defective continuous. I am not building up theories, I am speaking entirely of facts. There is a constant yearly discharge of mental defectives from the institutions of this country, when the only rational, the only humane thing would be to detain them all their lives.

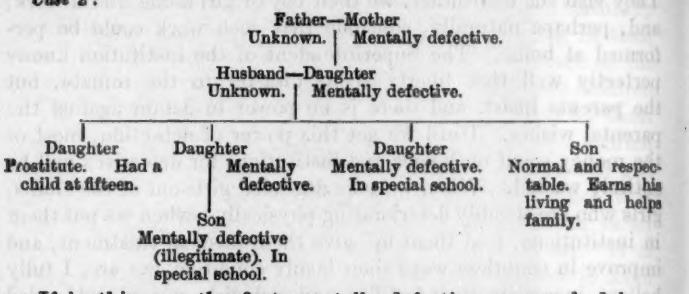
The following cases illustrate the need for continuity of control and also the false economy of neglecting to provide it:

Case 1:



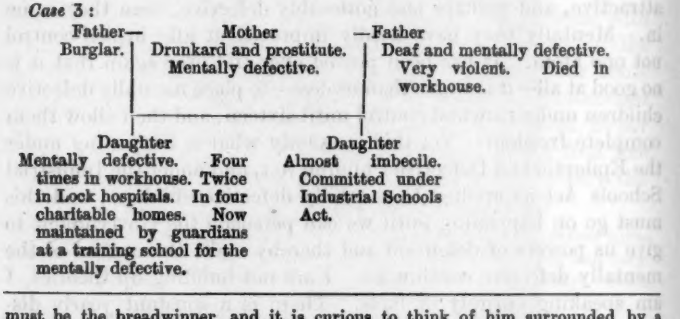
[3] Generally the whole of this family live together. They are foolish, happy-go-lucky, and entirely irresponsible people. I think the eccentric grandfather

Case 2:



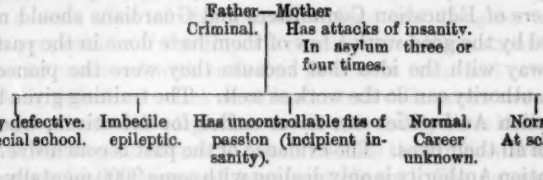
If in this case the first mentally defective woman had been placed under control, the birth of four other mentally and one morally defective persons would have been prevented.

Case 3:


Father—
Burglar.
Mother
Drunkard and prostitute. Mentally defective.
—Father
Deaf and mentally defective. Very violent. Died in workhouse.
Daughter
Mentally defective. Four times in Lock hospitals. Twice in four charitable homes. Now maintained by guardians at a training school for the mentally defective.
Daughter
Almost imbecile. Committed under Industrial Schools Act.

must be the breadwinner, and it is curious to think of him surrounded by a little group of mentally-defective women. No doubt the women contribute to the support of this extraordinary household, for the house is one of very evil repute, and the more decent of the inhabitants of the court in which it is situated are loud in their condemnations. Both of the two illegitimate and mentally-defective granddaughters of 'X' have been educated in special schools, and it was a foregone conclusion that the elder would be ruined as soon as she left. Let us consider what these girls have cost the community. Education in special schools costs more than twice as much as, and extends over two years longer than, that of a normal child. The elder one has since spent some long periods in the workhouse, where she has had an operation and two confinements at the expense of the ratepayers. One of her infants was for many weeks supplied by the Guardians with very costly milk. When first the girl went into the workhouse the After-Care Visitor in charge of the case used every endeavour to get the girl sent to the Guardians' Colony for the feeble-minded, but before the arrangements were completed the girl was allowed to leave the workhouse, and when once she had regained her liberty she could not be persuaded to go to the Colony. Shortly after this her twins were born. One died after a month. The second was so neglected and ill-treated that the Society for the Prevention of Cruelty to Children interfered. The poor, half-daft mother was frightened at the threatened prosecution and had what was described as a 'fit' and was probably 'hysteria,' and she went once more to the workhouse. The following year she returned to the workhouse for her second confinement. She is now at large again, and there can be little doubt that she is supporting herself by prostitution. The younger of the illegitimate grandchildren has been committed under the Industrial Schools Act. She is a low-grade defective, and can

Case 4:


Father—Mother
Criminal.
Has attacks of insanity. In asylum three or four times.
Mentally defective. In special school.
Imbecile epileptic.
Has uncontrollable fits of passion (incipient insanity).
Normal. Career unknown.
Normal. At school.

This whole family are constantly in and out of the workhouse, and their cost to the community in prison, asylum, and workhouse must be very great.

These histories illustrate fully the need for continuity of control. We want to prevent the birth of such people, and the continuous segregation of the mentally defective is the chief means of doing so. It appears that the birth-rate among defectives is unusually high, and though the death-rate is also high, there can be no doubt that the number of degenerate survivors is large. It is a serious thought that the only people who at the present time put no restriction on the number of children they produce are the degenerates, the defectives, and those bordering on pauperism. Small families are becoming the rule not only among the upper and middle but among the artisan class. It may seem Utopian to persuade intelligent and healthy people to have more children than they want from a sense of their duty as citizens, though there are signs that public opinion is moving in this direction; but it is surely a matter of common sense to begin at the other end, and to restrict the production of degenerates by the continuous control of the mentally defective.

In all I have said I have but touched on what I believe to be the two main and most important of the Commission's Recommendations. I have made no comments on the mechanism necessary to carry them into effect. The Report goes into the details of administration most fully, and it is over these details that I fear opposition will arise. People are so apt to lose sight of the main principles, and even to condemn them, because some detail is antagonistic to their own theories of local or general administration. For instance, the few members of Education Authorities or Boards of Guardians throughout the country who have been most keen in working for the care and training of defectives are just the people who, I am afraid, may be opposed to legislation founded on the Report, because the proposal is to relieve those authorities

never become self-supporting. When she leaves the industrial school and goes out into the world she, too, will probably give birth to more defectives. Had 'X's' daughter been recognised as defective and segregated at an early age, not only would a large sum of public money have been saved, but much human suffering and degradation would have been avoided. These girls are typical of a large number of defectives. In one workhouse the Commissioners were informed that sixteen mentally-defective women had produced 116 illegitimate children.

of responsibility for defectives. I am particularly anxious that members of Education Committees and Guardians should not be blinded by the good work a few of them have done in the past, and run away with the idea that because they were the pioneers no other authority can do the work as well. The training given by the Education Authorities can never suffice for defectives, who need control all their lives. The evidence of the past is conclusive. The Education Authority is only dealing with some 9000 mentally defective children. There are still 35,000 defective children for whom no special training has been provided. Again, the Education Authority has only dealt with them for a short period of their lives, discharging them to absolute freedom just when the first serious breakdown in conduct may be expected. The training given to them has not rendered them self-supporting. The statistics of the Birmingham After-Care Committee, a Committee whose records are more complete and extend over a longer period than those of any other After-Care Committee, prove this beyond a shadow of doubt. Here it is shown that out of 308 cases leaving special schools only 36 per cent. have become wage-earners, and many of these do not remain wage-earners for more than a few years, while only 6.6 per cent. earn as much as 10*s.* per week. That is, only 6.6 per cent. have any chance of becoming self-supporting citizens. I am sure that the training given has been good of its kind, but it is plain that many defectives need custodial care, and I think to any impartial observer it will also be plain that the Education Authorities, whose traditions and experience fit them to deal with children, are not the authorities to deal satisfactorily with individuals of all ages detained in institutions under certificate. The Lunacy Authority is undoubtedly more suitable. I have no hesitation in saying that by far the best education and training given to mentally defective people in England has been given in the idiot asylums, institutions which are conducted under the supervision and inspection of the Lunacy Commissioners. All asylums contain a large number of cases of congenital defect, that is of amentia, or, as they are usually called, the feeble-minded. It is recognised more fully, as each year adds to our experience, how closely connected are the varieties of mental defect. The congenital ament is particularly liable to attacks of insanity,[4] while insanity frequently leads to a condition of dementia hardly to be distinguished from and needing the same care and control as amentia.

Everything points to one authority, and equally plainly everything points to the authority which is already dealing with 120,000 of the mentally defective. I should like to make an earnest appeal

[4] See Tredgold's *Mental Deficiency*, ch. xvii., and Kraepelin's Lectures on *Clinical Psychiatry*, translated by W. Johnston.

to Guardians, and to members of Education Committees, to take a wide view of the matter. None can disagree with the main proposition of the Report, namely, that there should be one authority endowed with sufficient powers to train and control the mentally defective. Let us sink all small differences and unite in asking for immediate legislation. It may safely be said that there is no other single measure at present before the public which would have such far-reaching and beneficial effects. The passing of the suggested Act for the Care and Control of the Mentally Defective would at once reduce drunkenness, crime, prostitution, illegitimate births, and disease, and it would be the first preventive step in dealing with a great evil which threatens us with a steady deterioration of national efficiency, both mental and moral.

ELLEN F. PINSENT,
One of the Royal Commissioners.

THE DIRECT ACTION OF ENVIRONMENT ON PLANTS

THE great question which now above all others interests the biologists and divides them into two camps is the question of the relative importance of Natural Selection on the one side, and the Direct Action of environment on the other side, in the process of evolution of new species. We know Darwin's position and his conception on the dominant part of Natural Selection. But his views did not remain unaltered, and we saw in a previous essay[1] how Darwin himself, especially when he went into the details of variation in domesticated plants and animals, was brought to make some concessions. He began to doubt the adequacy of Natural Selection alone, and to assign more and more importance to the Direct Action of surroundings, which his precursors—Buffon, Lamarck, Geoffroy Saint-Hilaire, and Erasmus Darwin—had considered as the main factor of evolution. These are also the views which decidedly prevail now among biologists.

'Is it really sufficient,' they are asking themselves, 'that there should appear in a species of plants or animals an infinite number of purely accidental, individual variations in all possible directions; and out of this mass of slight, contradictory, fluctuating changes Natural Selection, in an acute struggle for life, will work out new varieties, and eventually new species, as perfectly adapted to their surroundings as if they had been the work of the surroundings themselves? Take any species of birds—for instance, the sparrows. Is it sufficient that there should be born, by mere chance, short-legged and long-legged sparrows, birds with shorter beaks and others with longer beaks, with smaller and with larger wings, light-coloured and dark-coloured, dull, bright, spotted ones, and so on—all in equal numbers each way, variation being supposed to be purely accidental, *indeterminate*, *i.e.* guided by no special cause one way more than another—and struggle for life will assort precisely those lengths of beak, legs, and wings, those

[1] *Nineteenth Century and After*, January 1910, p. 86 *sq.*

colours and those instincts which are best suited for making the sparrows thrive in given surroundings? Is it really enough that spots and markings of all possible colours and patterns should appear in a haphazard way? that the size, the form, and the inner structure of every organ, every muscle, every vessel and nerve, every bone, every tissue, should vary in every individual in all possible directions, by mere accident; and out of this lottery, which offers infinitesimally small chances of success for every separate character, Natural Selection will pick out and assort precisely those sets of tissues, vessels, bones, and nerves which answer best to the needs of adaptation? And if such a process may be imagined, does it really take place in nature? Is it true that variation is guided by no structural cause whatever, due to the conditions of life of the organism—that none of its possible causes ever prevails over the others?'

Is it not more consistent with modern observation and experiment to recognise that the variations which appear in a species at a given moment—being a combined result of the inherited *possibilities of variation* (determined by all the previous evolution of that branch of living beings) *and the modifying influences of a changing environment*—appear and accumulate in certain *definite* directions? And have we not reason to affirm that such a definite variation would be already an adaptation, just as in a tree that grows on the sea coast the prevailing winds check the growth of its branches on one side, and favour growth on the opposite side?

But if variation is not a mere accident due to a haphazard shuffling of cards representing thousands of inherited characters, if it is a result of the action of environment, then it is a *physiological fact*. It is due to certain definite causes—to changes in the food of the organism, in the composition of the inhaled air, in its temperature and moisture, in the amount of sunshine received. And each of these causes has definite effects on the composition of the blood of the animal or the sap in the plant, on the texture of the different tissues, on the anatomical structure and functions of each of the organs. Variation, in this case, loses its accidental character and emerges from the mysteries with which it was veiled. It becomes a subject of experiment, and many of the difficulties which stood in the way of the selectionist disappear.

To begin with, there is no need to assume that the very first beginnings in the variation of every organ are already so well pronounced as to have a 'selection value'—that they are already helpful in the struggle for life—as we are bound to assume if variation is accidental and is not reinforced gradually by the action of environment. A serious difficulty is thus removed, so serious that the best-informed Darwinists recognise

it, even though they repudiate the exaggerations of Darwin's critics.[2]

We understand, moreover, why variation must be *cumulative*. If it is due to some definite cause, it is bound to accumulate so long as this cause lasts; while there would be no reason whatever to suppose that a character which appeared by mere accident in one generation should be reinforced in the next, since there is no external or inner cause to produce such an effect. Such a supposition is in fact contrary to all we know of accidental deviations, and is contradicted by research in that new branch of science, Biometry.[3]

And finally, we understand why variation must be *correlative:* why several organs should vary at once and support each other's variation—a fact quite general in nature, and yet representing one of the greatest difficulties for the theory of accidental variation. Thus if the wings of a group of birds are slightly increasing in consequence of increased exercise, supported by better food, we see the physiological cause of the increase; and we understand why all the muscles, the bones, the blood vessels, and the nerves connected with the wings *must* undergo a correlative development. Or, if the eyes of a cave animal, having become useless in the dark cave, begin to be atrophied, we understand how, the function of the eyes being performed no more, a physiological deficiency of the nerves leading to the eyes, of the blood vessels, and the muscles connected with them necessarily follows. We need not resort to an improbable hypothesis and maintain that those animals survive best which best realise an economy of their life-forces by rapidly getting rid of a useless organ, with its muscles, nerves, and blood vessels. The economy is usually too small to involve a life-advantage. The same is true of the correlative development of all the teeth of a mammal corresponding to a given change of its food; or the degeneration of the toes in the bovine race and the horses, and all those striking instances indicated by the American palæontologists, Cope and Marsh, showing how difficult it is to explain the correlative variation of several organs, both in development and degeneracy, so long as we do not recognise that variation is due to a definite action of the environment.[4]

[2] See, for instance, the discussion of this point by a well-informed Darwinist, Dr. L. Plate, in the third edition of his work (published now under the title of *Selektionsprinzip und Probleme der Artbildung: ein Handbuch des Darwinismus*, Leipzig, 1908, pp. 76-121), which can be recommended as a model of scientific criticism. Needless to say that, like his great teacher, Dr. Plate fully recognises now the importance of the direct action of surroundings, including, of course, the hereditary transmission of the so-called 'acquired' characters.

[3] Cf. *Nineteenth Century and After*, January 1910, p. 105.

[4] Part II. ('The Causes of Variation') of the admirable work of Professor E. D. Cope has become so classical that it hardly needs a special mention. Suffice it to say that his chapter on 'Physiogenesis' (modification by physical causes) and especially the chapter on 'Kinetogenesis' (effects of use and disuse), which contains

It is self-evident that those biologists who recognise the dominant influence of a direct action of environment do not necessarily deny the intervention of Natural Selection. On the contrary, they fully recognise its usefulness as an auxiliary. They only limit its powers. It ceases to be a selection of haphazard variations—necessarily indifferent in most cases in their incipient stages—but becomes a physiological selection of those individuals, societies, and groups which are best capable of meeting the new requirements by new adaptations of their tissues, organs, and habits. It is not so much a selection of individuals as a selection of groups of individuals, modified all at once, more or less, in a given direction. It is also, in the animal world, a selection of those who best exercise their collective intelligence for the diminution of inner competition and inner war, and for the rearing of their offspring by combined effort. And finally, as it does not depend upon an acute struggle between all the individuals of a group, it does not require for its full action those exceptionally bad seasons, droughts, and times of calamities which Darwin considered as especially favourable for Natural Selection. It goes on in times of plenty as well as in times of scarcity, especially in times of plenty and during the good seasons, when an abundance of food and vitality favours variability, and gives a certain plasticity to the organisms. Progressive evolution becomes thus comprehensible, and our hypotheses meet what we really learn of variation and evolution in nature.

In short, many serious difficulties which beset the way of the selectionist disappear, and we feel no more the need of the many hypotheses made by the Neo-Darwinists in support of Natural Selection, once we see in it but an auxiliary to the direct action of environment. Let us examine, then, how far such a view is borne out by modern research.

I

Already in Darwin's lifetime the investigations he was making and those to which his work had given birth induced him to recognise the importance of the direct action of environment. He only added—and his excuse was, of course, absolutely true—that at the time he wrote his *Origin of Species* the researches which proved the importance of this cause did not exist. Now, the amount of work already done in that direction is immense and its bulk increases every year. At Vienna we have now a special

the analysis of the origin of the osseous tissue in the vertebrate animals, the moulding of the articulations, the origin of the different types of foot in mammals and of their dental types, remain models of truly scientific analysis in support of the Direct Action of environment and the impossibility of explaining these structures by Natural Selection.

physiological laboratory established for the study of the different agencies—food, temperature, light, &c.—which alter the inner structure and the forms of living beings; and a special review was founded in Germany for the sole purpose of dealing with the same subject.[5] Two new branches of science, experimental morphology and experimental embryology, have grown up lately, and every year there appears some fundamental work devoted to the general position of Darwinism and Lamarckism.[6]

A good-sized volume would be required merely to sum up the results of the modern experimental researches into the direct action of environment upon plants and animals. Consequently, beginning with plants, I will mention here but some of the most convincing of these researches. Let me only remark at once that the character of such investigations has quite changed of late. Formerly the explorers directed their chief attention to changes in the *forms* of organisms, which could be obtained experimentally. The biologist continued, so to say, in his laboratory the work of the practical grower or the breeder. But now the inquiry goes deeper. It becomes a physiological investigation into the substance and the causes of variation. Variation is treated as a branch of plant or animal physiology and histology, and it is thus studied in the only proper way which is capable of revealing its causes and throwing light upon the much debated question as to whether variation, acquired by one generation, is transmitted to the next, and how the transmission takes place.

[5] *Archiv für Entwicklungsmechanik.* Having lately gone through the recent literature of the subject, I found that I had to examine the contents of more than two hundred memoirs and works, chiefly experimental, published during the four years 1906 to 1909. And yet the American literature was far from being fully represented.

[6] Besides the works of Professor H. W. Conn (*The Method of Evolution*, New York, 1900), R. H. Lock (*Recent Progress in the Study of Variation, Heredity, and Evolution*, London, 1906), and H. de Vries (*Die Mutationslehre*, Vol. I.), which I have mentioned previously, the following must be warmly recommended to the general reader: *The Primary Factors of Organic Evolution*, by Professor E. D. Cope, London and Chicago, 1896; *Darwinism To-day*, by Professor V. L. Kellogg, New York, 1907; *Les Théories de l'Evolution*, by Professor Yves Delage and M. Goldsmith, Paris, 1909; and the third, much enlarged edition of Dr. L. Plate's work, now entitled *Selektionsprinzip und Probleme der Artbildung: ein Handbuch des Darwinismus*, Leipzig, 1908: all four full of facts and ripe thought. So many side-issues have been introduced into the subject of Evolution, and so much that is purely dialectic has been dragged into the discussion, that a substantial portion of these works is given to heredity and the discussion of the rapidly altered and readjusted hypotheses of Weismann and his 'Neo-Darwinist' followers, as also to the sudden 'mutations' observed by de Vries, in which some naturalists saw a rival to, and some others a support of, Darwinism; to the rules of hybridism discovered by Mendel; and to the half-mystical reasonings of Pauly. In some modern works, and especially in R. H. Francé's *Der heutige Stand der Darwin'schen Fragen*, Leipzig, 1907, one will find, by the side of serious scientific analysis, a large tribute paid to the metaphysical and half-mystical views of some German biologists who try to revive the Hegelian *Naturseele*, in order to explain evolution, and most improperly describe themselves as 'Neo-Lamarckians.'

It would be needless to repeat what has been already said in the pages of this Review in my 'Recent Science' articles about this important category of researches in the domain of plant physiology.[1] One illustration only—the experiments of Professor Gaston Bonnier—I shall have to repeat; and, with a couple or so of examples taken from more recent works, this will do to show the bearing of all similar investigations upon the question which we have in view. Let me only remind the reader that we have in this domain such capital investigations as Rauwenkof's, Koch's, and Batalin's into the influence of light upon the structure of the cells; the modification of aërial stems and their inner structure obtained by Constantin by cultivating them in the ground; and especially the extensive researches of Stahl, Dufour, Pique, Surozh, Vesque, and Viet, and many others, some of which will be mentioned presently, into the changes of form, colour, hair-growth, and tissues of the leaves, according to the amount of sunlight and moisture they receive. All these researches, undertaken without any preconceived idea—as mere contributions to different chapters of plant physiology—prove nevertheless that most plants suit their environment so well only because environment itself has produced their actual forms. Let us then cast a glance upon some such instances.

We all know that the plants of the Arctic regions, as also the plants growing at high altitudes in the Alps, the Pyrenees, the Himalayas, the mountains of Borneo, and so on, have certain characters in common which compel botanists to describe them as separate varieties, sub-species, and even separate species, quite distinct from their next of kin growing in the lowlands of the temperate zone. As a rule, both the Arctic and the Alpine plants are often dwarfed, their main stem is often arrested in its growth, and a rosette of radical leaves only is formed. If there is a stem, the leaves upon it are usually crowded and reduced in size; the flowers, too, have shorter stalks, but they are often more brilliant and fragrant. Altogether, the plant has a 'tufted,' compact aspect and is often covered with hairs.

Now all these Alpine characters were obtained experimentally by a member of the Paris Academy of Sciences, Gaston Bonnier. Taking several plants from the valley, and dividing each of them into two parts, he planted one part in the valley and the other in a protected place at a high level. Two or three years later both sets of plants were compared, and the results were striking. Without the slightest interference of natural selection, Alpine varieties were obtained out of the plants of our valleys. Taking,

[1] *Nineteenth Century*, April 1894, pp. 684-691; and September 1901, pp. 423-437.

for instance, a common inhabitant of our meadows, the rock-rose (*Helianthemum vulgare*), with its slender stalks bearing each a pretty flower, the same plant became at an altitude of 6660 feet a thickly interwoven, shapeless ball of leaves, out of which ball protruded tiny star-like flowers with narrow petals. It certainly could be described as a distinct variety, and probably would have been described as a separate sub-species if it had been found in Laponia or in the barren lands of Canada.[8]

As a rule, in all plants grown at the high-level stations the internodes were short, the leaves were smaller and thicker, and when the plants were not placed too high, their flowers were more brilliant in colour and more fragrant than those of their congeners in the valley. An anatomical examination of their tissues proved that in the Alpine surroundings they had taken such characters as to reduce transpiration, and especially waste, obtain a better assimilation, and store more starch, more sugar, more volatile oils, and more colouring pigments. They were thus adapted, without the aid of natural selection, by the action itself of the surroundings, to take better advantage of the short Alpine summer, and better to resist its cold nights and blighting wind.[9]

In order to be still more sure of his results, Professor Bonnier made further experiments. He grew plants in boxes, wherein artificial surroundings of heat, cold, and moisture were maintained. The results were still more striking. When the plants were submitted during their growth to extremes of temperature and moisture—as is the case in an Alpine climate—they took, after only two months, the above-mentioned Alpine characters, including even the reddish colour of the leaves, due to the presence of a special colouring matter, anthocyan.[10]

At the same time the opposite results were obtained when seeds of germander (*Teucrium*), gathered at an altitude of 5000 feet in the Pyrenees, were sown near Paris. They gave, after three years, plants with longer stems and longer internodes, leaves of a brilliant green, and so on—plants, in short, quite similar to those which grow wild in that neighbourhood. In the surroundings of the low plains Alpine seeds thus gave plants bearing the character of lowland vegetation—this experiment being a reply to those who

[8] De Vries, in his *Mutationstheorie*, I. 102, has reproduced the photographs of the mother-plant and its Alpine variety.

[9] G. Bonnier, 'Culture expérimentale dans les Alpes et les Pyrénées,' in *Revue générale de botanique*, 1890, p. 213; 'Recherches expérimentales sur l'adaptation des Plantes au Climat alpin,' in *Annales des Sciences naturelles, Botanique*, 7e série, 1894, t. xx. p. 217; *Recherches sur l'Anatomie expérimentale des Végétaux*, Corbeil, 1895, with plates.

[10] *Comptes Rendus* of the Paris Academy of Sciences, 1898, t. cxxvii. p. 307; 1899, t. cxxviii. p. 1143.

had objected that Bonnier's plants, in taking an Alpine character, were probably 'reverting' to an ancestral form.

Taking next forty-three different species from Fontainebleau, and growing them at La Garde, near Toulon, Professor Bonnier obtained on the coasts of the Mediterranean—in the first, and still more so in the second generation (the characters acquired in the first generation being thus transmitted by heredity to the next, to be further increased)—plants with a distinct Mediterranean aspect: woody stems, broader and thicker leather-like leaves without nerves. The Fontainebleau Ragwort Senecio (*Senecio Jacobæa*) took several of the characters of the Mediterranean species *Senecio nemorosus*. Our common ash (*Fraxinus excelsior*) became similar to the ash of the Mediterranean coasts, *Fraxinus parvifolia*, and so on.[11]

I have dwelt on purpose upon these experiments, as they represent a complete cycle of researches the accuracy of which has been recognised by competent botanists, while at the same time they contain replies to the usual objections: 'reversion to ancestral types,' 'non-inheritance of acquired characters,' and the like. The characters acquired in one generation *were* transmitted to the next; and those characters which are described as 'hereditary' were as liable to vary as those which are described as 'acquired.' All we can say of these experiments, and all the others to be mentioned presently, is that those characters which had been maintained during a very long period of evolution (in our case, those of the Helianthemum *genus* and those of the Cistaceæ *family*, to which it belongs), being of a more ancient descent than those of the different *species*, have more stability than the latter.

The great value of the experiments of G. Bonnier is generally recognised. Still, in the last edition of Dr. Plate's excellent work on Darwinism we find the remark that, after having considered first the experiments of Bonnier as conclusive, Dr. Plate began to doubt lately,

> whether in this case, as in the case of adaptation of mammals to life at a high altitude, there were not set free such reactions only, which occasionally will take place in the lowlands. If I nevertheless accept the possibility of direct adaptation [Dr. Plate continues], it is because, according to the rules of probability, the variations due to mechanical causes may also occasionally happen to be useful.[12]

That the variations which took place in Bonnier's plants at a high altitude should belong to the category of those which take place *accidentally* in the lowlands as well, seems extremely unlikely, and remains a mere guess. Wherever changes *in the same direction* (though to a smaller extent) take place in the lowlands, we are sure

[11] *Comptes Rendus*, 1899, t. cxxix. p. 1207.
[12] *Selektionsprinzip*, p. 436.

to find some causes at work similar to those which exist in the high altitude surroundings, though on a smaller scale. This would be just one of those cases which Lamarck mentions, speaking of variation in a meadow plant.[13] Still less probability is there in Dr. Plate's suggestion, since we know from a later communication of Bonnier to the Academy of Sciences[14] that the morphological variations in his plants were brought about by variations of their inner structure, and therefore by no means can be described as *accidentally* useful. The diminished surfaces of transpiration and the shortened stems were the necessary results of the Alpine surroundings; the increased storage of starch and sugar was due to the long hours of intense light; and so on. None of these changes was accidental. That so serious and impartial a thinker as Dr. Plate is should have conceived such doubts seems to me probably due to the fact that at the time he wrote he did not yet know Bonnier's later work on the anatomy of his Alpine plants.[15] Besides, like all the recent writers on Darwinism and Lamarckism, he has chiefly studied variations in animals, while it is for variation and adaptation in plants that we have the best experimental data.

II

Taking now another series of experiments, made by H. Klebs, we learn how and why not only the lower plants—fungi and algæ—but also the flowers of the higher plants are altered under the influence of surroundings in their form, their size and colour, the number of their different parts, and their disposition (the inflorescence). A change in the food, or in the temperature and the moisture of the air, in the amount or even in the colour of light received by the plant, alters all the characters of the flowers.

If the common nettled-leaved *Campanula* be submitted to a high temperature during the winter, its usually blue bell-flowers turn to white. The cause of it is, that the stem grows faster under the influence of a raised temperature, and for its forced growth it absorbs a considerable amount of food. But the intensity of light is relatively small during the winter in our latitudes, and therefore the formation of food-stuffs is slow within the plant; the result

[13] *Philosophie zoologique*, edit. 1907, p. 44.

[14] 'On the anatomical and physiological characters of plants rendered Alpine by means of an alternately changing temperature,' in *Comptes Rendus*, 1899, t. cxxviii. p. 1143.

[15] From Dr. Plate's most conscientious list of the works which he has consulted, or only knows in abstracts, we see that he knows only the first two works of Bonnier—of 1890 and 1894—the first through De Vries. In the first edition of his work (made in 1890) he did not yet speak of Bonnier's experiments.

is that the colouring matters of the flower, which require sugar for their formation, are not prepared in sufficient quantities. The flowers become paler and often smaller than usual. Something similar happens also with the red primula. The usual equilibrium between the supplies of heat and light being broken, the effect is the same.

Taking next various species of *Sempervivum*, which belongs to the thick-leaved Crassulaceæ family and requires plenty of sunshine and a dry atmosphere for blooming, important changes were produced by altering these two conditions. The keeping of the plants in a warm temperature of from 85 to 89 degrees Fahrenheit, but in the dark, prevented them from blooming; and if they received afterwards a full light, the few flowers they produced were poor and of a lighter colour. On the other hand, the moment of blooming could be advanced by keeping the plants in a dry atmosphere and reducing at the same time the amount of food. By varying his experiments, H. Klebs altered at will the form of the plant, the forms of the flowers, the numbers of their separate parts, and the disposition of the flowers, *i.e.* the inflorescence, which often serves to distinguish species from each other.[16]

The conclusions drawn by Professor Klebs from his experiments are worthy of note.

> Under different conditions of life [he writes] independent variations take place on a large scale in all parts of the flowers. The sepals, the petals, the stamens, &c., all undergo variation. All the organs of a plant vary under the influence of the outer world, even when crossing is rigorously excluded. Even those characters which are constant under the usual conditions (the so-called 'organisation characters' of Naegeli) obey the same rule, provided the outer world acts at the proper moment. The distinction between the so-called 'constant' and the so-called 'variable' characters—those which are supposed to have been fixed by heredity and those which are not—disappears. *All* the characters of a species depend upon its inner structure, which depends in its turn upon the outer conditions; a change in the latter always produces a change in the former, which results in modifying the different *specific* characters of the plant.

Species, in Klebs's opinion, remain invariable so long only as the outer conditions are unchanged; and their variations are determined, on the one side, by 'the sum of potentialities' of the finest particles of their protoplasm and the action of environment. Let me add also that Klebs, in common with most plant physiologists who also speak from their own experimental knowledge, maintains that the anomalies of development due to a change of environment can be transmitted by heredity.[17]

[16] *Jahrbücher für wissenschaftliche Botanik*, 1905, Bd. xlii. pp. 155-320; Tobler's abstract in *Naturwissenschaftliche Rundschau*, 1906, xxi. pp. 254 *sq.* Also the Croonian lecture delivered before the Royal Society on the 26th of May, 1910.

[17] *Abhandlungen der Naturforschenden Gesellschaft zu Halle*, 1906, Bd. xxv. pp. 133 *sq.* In a second series of experiments the same explorer confirms

III

We have just seen that Professor G. Bonnier produced the 'Mediterranean characters' in plants taken from Fontainebleau which he grew on the Mediterranean coast. But the characters of maritime plants were also produced artificially by Lesage. One of the most typical features of maritime plants is that most of them have thicker leaves, due to a greater development of the palissade tissue (accompanied by a reduction of both the spaces between the cells and the empty spaces known as 'lacunae'). The fleshy character of the leaves is also met with in desert plants when they grow in a salty soil. Now, these same characters were obtained by Lesage simply watering our commonest plants with water containing some table-salt. The leaves of the common pea and the watercress became more fleshy and succulent under such a treatment, owing to an increase in the palissade tissue (the epidermis and the nerves of the leaves becoming only a trifle thicker); and these so easily 'acquired' features were transmitted by inheritance: plants grown 'from seed obtained from plants of cress which were somewhat succulent in the first year's experiment became still more so in the following.' [18]

Taking now another division of typical plants—the plants of the deserts and the sub-deserts, we see that the most characteristic feature, the spines and the prickles, can be produced artificially in a dry atmosphere; and, *vice versa*, they disappear when a desert plant is cultivated in a sufficiently moist air.

It will be remembered that Darwin considered the thorns and prickles borne by certain plants—especially by the desert plants—as a good proof of natural selection. In the plains peopled with large numbers of browsing animals, the more so in the arid plains where the grass is burnt in the summer, only those bushes and shrubs would have a chance of survival which had accidentally developed prickles and spines. True that the very fact of prickly plants being especially characteristic of dry and hot deserts suggested a causal connexion between the hot and dry atmosphere of the desert and the development of thorns and prickles; but so long as it was not demonstrated by experiment

his previous conclusions in these words: 'All the characters of a species, even those inherited characters which seem to have been quite firmly established, can be changed within certain limits by *influencing the potentialities of an organ at the moment of its formation.*'

[18] *Revue générale de Botanique*, t. ii.; *Comptes Rendus*, 1899, t. cix., and 1891, t. cxii. I quote this last passage from Rev. Geo. Henslow's *Plant Structures*, pp. 50 and 128-131.

that a dry atmosphere develops thorns, the hypothesis of natural selection seemed to be very probable. Now, we have such experiments.

Lhôtelier has demonstrated that if two stocks of barberry, the stems of which have been cut a few inches above the ground, are grown under two glass bells, one of which has a very dry atmosphere and the other a very moist one, two different sorts of plants are obtained. In the moist atmosphere all the leaves are fully developed, while in the dry atmosphere of the other bell the lobes of the leaves are not developed at all and their nerves become woody and are transformed into thorns.[19] The strong transpiration which takes place in a dry atmosphere reduces the formation of the tissues out of which the lobes of the leaves are formed, and it lignifies—*i.e.* makes hard and woody—the tissues of the nerves of the leaves. The surroundings themselves thus develop the thorns and the prickles.

The reverse experiment has also been made by W. Wollny. By growing various species in three different glass-houses, one of which was kept very dry, the other very moist, and the third of average moisture, he demonstrated that under the influence of great dampness the thorns of the common furze (*Ulex europæus*) were entirely transformed into full leaves.[20] Similar experiments were repeated more than once with the same result. Besides, we have the experiments of Marloth, which prove how easily all the traits which give the desert flora its special aspect can be obliterated. It was sufficient to transport plants from the sun-burnt deserts of the Tangua Karoo to the less sunny and moister climate of Capstadt (where they still get 54 per cent. of the astronomically possible sunshine) to see them lose their desert features. Their globular shape and their dull or ochre colouring, due to a coating of wax, or gum, or to a thick coating of hair, disappeared. The *Crassula columnaris* lost its globular form and grew in the shape of a column; and the *Mesembryanthemum truncatum*, which is usually of an ochre colour, produced only green leaves at Capstadt. Other dull-coloured or grey plants of the desert were covered with a green foliage during the rainy season; but, having lost the protective epidermis and the special supplement of scales which they usually have in the desert, they were burnt during the dry season.[21]

A great amount of similar evidence could be produced. Hugo de Vries, who is an experienced botanist and grower, obtained two

[19] For more details see my 'Recent Science' article, *Nineteenth Century*, April 1894, p. 690.

[20] *Forschungen aus dem Gebiete der Agrikulturphysik*, Bd. xx. 1898, p. 397.

[21] R. Marloth, 'Die Schutzmittel der Pflanzen gegen übermässige Isolation,' in *Berichte der deutschen botanischen Gesellschaft*, Bd. xxvii. p. 362 *sq.* Also *Naturwissenschaftliche Rundschau*, 1909, p. 643.

quite different sorts of plants by cultivating the South African Compositæ, *Othonna carnosa* and *Othonna crassifolia*, in a moist and in a dry atmosphere.[22] From Rev. Geo. Henslow we learn that the *Zilla myagroides*, from the Cairo deserts, when it was raised from seed in the Botanic Garden at Cairo by Dr. Sickenberg, 'not only bore developed leaves, but the spines, though formed through the forces of heredity, were very slender and subflaccid, instead of being intensely rigid.' So also the ordinary spiny form of *Ononis* (*O. spinosa*), when it is grown either in a very rich soil with abundance of water, or in a moist atmosphere, gradually loses its spines. But they reappear as soon as the plants are allowed to grow in the ordinary way.[23]

Another feature characteristic of plants growing in the dry soil of the deserts and sub-deserts is the production of tubers and bulbs, which are storehouses of starch and sugar, and also apparently of water.[24] But this feature, too, disappears when the plant is cultivated in a moist soil. On the other side, Duchartre, by making tubers of the yam-plant (*Dioscorea Batatas*) produce long shoots without being allowed to have water, obtained that other feature of the desert plants: the hardening of the stem, due to a hardening of the walls of the fibres and a diminution of their inner diameters.[25]

I ought also to mention the varied and striking experiments of Vöchting, who, by varying the temperature and the amount of light given to a plant, obtained rampant varieties, maintained asexual reproduction, and so on,[26] as also many other similar experiments. In fact, a volume ought to be written on the subject which I am sketching in this article.

Suffice it to say in this place that we have now a considerable number of experimental works which did not exist when Darwin wrote his *Origin of Species*, but by means of which it has been established, beyond any reasonable doubt, that the adaptations of the inner structures and the outer forms of plants, which were a puzzle fifty years ago, must have been produced by the direct action of environment. And we have seen also in the above that the hereditary transmission of the so-called 'acquired' characters in plants has been proved in most cases by direct experiment.

[22] *Die Mutationstheorie*, Bd. i., Leipzig, 1901, p. 103, where the photographs of both series of plants are reproduced.

[23] Rev. Geo. Henslow, *The Origin of Plant Structures by Self-Adaptation to the Environment* (London, 1895), pp. 38-40.

[24] Such is, at least, the opinion of Dr. Volkens.

[25] *Plant Structures*, pp. 78, 79 and 42.

[26] *Jahrbücher für wissenschaftliche Botanik*, 1893, Bd. xxv. p. 149; *Berichte der deutschen botanischen Gesellschaft*, 1898, xvi. 37.

IV

With such an *experimental* knowledge as we possess now, the *observations* of botanists relative to the adaptations of plants to environment in different typical regions of the globe acquire a new meaning. They become a strong corroborative evidence in favour of the direct action of environment having itself produced these adaptations.

Let us take a concrete example to fix our ideas. Let us examine, for instance, the flora of the caverns as it appears from the investigations of M. Jacques Maheu, who has explored scores of caves, *gouffres*, and *avens* in France, in the German portion of the Vosges, in Belgium, and partly in Italy.[27] The flora of all these caverns originates from plants growing in the immediate neighbourhood, but all these plants are so modified in their new surroundings as to represent a special type of cavern flora. Want of light, a low temperature, extreme humidity, and a meagre calcareous soil are their conditions of growth; and all the cavern plants have acquired precisely those characters which one may have anticipated under such conditions, judging from the experiments of Dufour on the action of light,[28] and those above-mentioned of Bonnier and Lhôtelier. Altogether, the cavern vegetation stands between the Arctic and the aquatic and is perfectly well adapted to its own special surroundings.

If we take now the classical work of Grisebach on the vegetation of the globe and examine the floras of different typical regions of the earth and their protective features, or if we study under the same aspect any one of the fundamental works on the flora of some typical region, we find the same coincidences between the local conditions and the adaptations of the vegetation to these conditions. The flora of the Arctic regions, of the high altitudes, the deserts, the sea coasts, and so on, have each their distinctive features, and these features are precisely those which we obtain experimentally if we take plants from the plains of Middle Europe and grow them in Arctic, Alpine, desert, or maritime surroundings. We may thus conclude that although these numerous coincidences between the characters of the plants and their environment are not yet *proofs* of those characters having been produced by the direct action of the surroundings,

[27] Jacques Maheu, 'Contribution à l'étude de la flore souterraine de France,' in *Annales des Sciences naturelles, Botanique*, 9e série, t. iii. 1906, pp. 1-190. The paper is illustrated by many drawings and contains a copious bibliography. The anatomical process of disappearance of the mechanical support tissue and the changes from sexual to vegetative reproduction are especially worthy of note.

[28] 'Influence de la lumière sur la forme et la structure des feuilles,' in *Annales des Sciences naturelles, Botanique*, 7e série, t. v., 1887, p. 311.

they establish, by their very number, a high degree of *probability* in favour of the hypothesis of Direct Action.

This is the thesis which G. Henslow develops in his work on plant structures,[29] and in support of which he brings forward a considerable amount of evidence. Taking first the desert and sub-desert vegetation, and next the Alpine, the Arctic, the maritime, and the aquatic vegetations, he shows that the same coincidences are found between these types of vegetation, the climatic conditions they belong to, and those plants which were obtained experimentally in conditions similar to those of the deserts, the high altitudes, and so on. And he concludes that these coincidences are so numerous that it would be contrary to all probabilities to attribute all these well adapted forms to an infinity of *indiscriminate, indefinite* variations out of which only those in harmony with environment have survived.[30]

It is very probable that his suggestion to the effect that there are '*no* indiscriminate and wasted variations at all' will not meet with general acceptance. Each plant is a complex result of all the modifications which its ancestors underwent during the long process of past evolution, and its possible variations are determined by all the past modifications. It seems difficult, therefore, to deny the possibility of indiscriminate variation, due to the inner causes of heredity. But once by the side of indiscriminate variation there is going on a process of *variation in a definite direction*, due to the direct action of environment, and the effects of this action are *inherited*, as we saw it proved more than once in the above-mentioned experiments—then the accidental variation is necessarily subordinated to the determinate one.

With this limitation, most botanists will certainly agree with the conclusions of Henslow—namely, that the facts he has brought together represent strong corroborative evidence in favour of the adaptations being produced by the direct action of the environment itself. They render this hypothesis so probable as to attain almost certainty.

And now I must mention a third vast series of researches, pursued for the last thirty years, into the effects of mechanical, electrical, and chemical irritations, as well as changes of light, tem-

[29] *The Origin of Plant Structures*, 1895.

[30] The question, Henslow writes, is this: 'Which probability or hypothesis do *the facts* of the case seem to favour most, viz. that *indefinite* variations arise from some assumed internal causes, of which variations only those in harmony with the environment survive, and are said, therefore, metaphorically to be selected by it; or is it that the external forces of the environment excite the variability which is inherent in plants, and call into action the responsive power of the protoplasm in the various species of plants, which thus *all* tend to put on the same, or similar, or at least adaptive and *definite* variations of one sort or another, so that there are *no* indiscriminate and wasted variations at all?' (Introduction, pp. 9-10).

perature, moisture, and composition of the air received by a plant, upon its physiological processes and the structure of its tissues. Here we have another immense array of facts which could be described as experimental anatomy, or experimental histology (the experimental science of the organic tissues), giving us a fresh insight into the inner life-processes which lead to changes of external forms.

Two or three examples chosen from a mass of material will do. Thus in an interesting little work R. Prein studied the effects of mechanical pressure upon the tissues of the roots (Bonn, 1908). We know what will happen if a growing root is passed through a glass tube which prevents it from increasing in thickness. Unless the tube be extra strong, it will be broken—the root creating a tissue strong enough to break the resistance. As the root continues to grow, and its cells continue to increase and subdivide, they exert a pressure upon each other where they meet with a mechanical obstacle, and this pressure stimulates further growth. The cells subdivide more rapidly and become more numerous, remaining smaller at the same time. The walls of the parenchym cells consequently grow thicker, especially those walls which run parallel to the lines of pressure, while those which are parallel to the surfaces of the glass tube grow thinner, or even disappear. The tissue of the root thus acquires a greater solidity. But as the transpiration current of the plant and the transport of assimilation products go on unabated along the root, the life processes are intensified in the compressed zone, and finally the growing root breaks the tube. Of course the formation of a more solid tissue may be described as an adaptation, but it is merely a small alteration of the process of growth, which has a purely mechanical cause. And we need not resort to heredity, or to natural selection, when we see that, as a rule, the roots grow harder in a hard soil, and their tissues become softer in a friable soil—a change, by the way, which has permitted our gardeners to obtain the eatable radish out of its wild ancestor.

The experiments of R. Hegler, showing that the application of artificial strains to seedlings provokes a remarkable development of the mechanical tissues of the seedlings, and those of Henslow, who obtained the same result with leaf-stalks of the horse-chestnut, belong to the same category.

A wide series and a great variety of researches into the effects of mechanical lesions upon growth, of different sorts of food upon the characters, both racial and specific, of carbonic acid and different narcotics upon the assimilation of oxygen, and so on, might be mentioned in this place. They would deserve mention the more so as from most of them we learn over and over again—in defiance of Weismann's hypotheses—that characters acquired

in new conditions *are* transmitted by heredity to the offspring, and are retained by it for some time after the plant has been returned to its previous conditions. But another score of pages would be needed to do justice to these instructive and varied researches. So I shall limit my illustrations to one more—namely, the investigations made by Vöchting and Haberlandt for explaining the well-known capacity of the leaves in many plants for taking such positions as to receive more light in a direction perpendicular to the surface of their lobes.

It appears from the investigations of G. Haberlandt, who has worked at this subject for the last five years, that the cause of such changes of position of the leaf—so appropriate that they seemed to suggest a conscious will—lies in the structure of its epidermis. The latter contains a number of slightly swollen cells, which, being filled with sap, act as so many microscopic lenses for admitting light into the interior of the leaf. Haberlandt describes them even as *ocelli*, or eyelets, and compares them to the *ocelli* of some lower animals. This discovery having been contested, Haberlandt continued his researches, and it may be taken now as proved that it is really the direct action of the light falling on the epidermis, and transmitted through the small lenses to the protoplasm of the lobe, which produces a certain irritation in its tissue. This irritation is apparently transmitted further to the stalk (probably by means of the protoplasm filaments connecting the cells), and makes it alter the position of the lobe.[21] The same capacity of reflex action in response to light is well known in seedlings, in the inflorescence axis of the daisy and many other plants, as also in the eyes of animals. We do not know yet how it acts, but it requires no special act of volition.

Altogether we have in these and many similar researches ample proofs of the fact that many adaptive variations, which were a puzzle for the botanist, are direct results of purely mechanical causes due to the conditions of growth.

With these illustrations our series of evidence in favour of the direct action of environment, considered as the true cause of determinate variation, may be concluded. We took that evidence from three distinct domains: the experiments which show that all the typical characters of the different floras on the surface of the globe can be obtained experimentally by placing plants in the conditions of growth that are characteristic of the Arctic, the Alpine, the desert, the maritime, and the aquatic flora. We

[21] G. Haberlandt, *Die Lichtsinnesorgane der Laubblätter*, Leipsig, 1905; *Berichte der Botanischen Gesellschaft*, Bd. xxii. 1904, and xxvi. 1906; *Biologisches Centralblatt*, Bd. xxvii. 1907; *Sitzungsberichte der Wiener Akademie der Wissenschaften*, Bd. cxvii. 1908; *Jahresbericht der wissenschaftlichen Botanik*, 1909. Good summing up, by O. Damm, in *Naturwissenschaftliche Rundschau*, Bd. xxiv. 1909, p. 389.

then rapidly passed in review the corroborative evidence offered by the typical representatives of each of these floras, whose inner structure and external forms always correspond to their conditions of life. And, finally, we took a few illustrations from a third, still wider domain of researches, which throw some light, by an anatomical study of the tissues and a physiological study of the different organs, on how it is that a given external cause, such as excessive evaporation or want of light, produces those morphological changes which counterbalance the noxious effects of this cause; how is established the equilibrium between cause and effect which permits plants to live in the sun-burnt dry deserts and in the over-moist, dark caves, by the side of the glaciers of Spitzbergen, and in the moist, tropical atmosphere of the coasts of the Malay Archipelago.

Going over these three categories of data, we have found that the environment, acting on the tissues of the plants, is capable of itself producing, and really produces, those features which render life possible in each of the just named conditions. Plants are so plastic that they respond at once to changed conditions of life.

Of course, it would be contrary to all our present knowledge to believe that natural selection has nothing to do with the evolution of new species. On the contrary, it has much to do to maintain in purity the races which undergo the necessary changes under the influence of the direct action of environment. But its chief function must be to weed out those individuals and races which have not enough vitality and enough plasticity to undergo the changes imposed upon them by a change of environment. The great difficulty which confronted biologists so long as they considered natural selection as the mainspring of evolution—namely, the accumulation of change in a given direction, if variation does not go itself in that direction under the influence of the surroundings—this difficulty, which Darwin saw very well and which no amount of speculation can remove, does not exist any more once we recognise that the main factor of all evolution is the direct action of surroundings, and agree to consider natural selection as an extremely useful but not unavoidable auxiliary.

V

Professor V. L. Kellogg, in his *Darwinism To-day*, makes the remark that if one carefully re-reads now the *Origin of Species* in the light of modern controversies, he will be astonished to see how often Darwin calls on Lamarckian factors of evolution to explain the difficulties met by the theory of Natural Selection.[32] That

[32] *Darwinism To-day*, 1907, p. 39, note. Professor T. H. Morgan seems to have made the same remark in *Evolution and Adaptation*.

there is much Lamarckism even in the first edition of the *Origin* was also Lyell's impression. In fact, determinate variation under the direct action of environment and the effects of use and disuse of organs are recognised in many places in the *Origin of Species*; still more so in the second volume of *The Variation of Animals and Plants under Domestication*, and in the seventh chapter of the sixth edition of the *Origin*, which was much modified by Darwin and partly written anew for that edition. About Darwin's later days' 'Lamarckism' there is no doubt; but what especially induced him to oppose Lamarck, apart from his personal predilection for Natural Selection, was, as we see from his letters, that Lamarck had spoken of a 'tendency to progression' and 'adaptation from the slow willing of animals.'[33] In such ideas Darwin probably saw a danger, as they were opening the way for teleological conceptions which might once more bar the way for a truly scientific study of evolution.[34]

It must be owned that so long as biologists studied chiefly the variations *of forms only*, and saw in variability a process due in the main to the obscure causes of heredity, there really was a danger of such an intrusion of teleological metaphysics into the theories of evolution. However, scientific research soon opened new channels. Variation having been taken in hand by physiologists and anatomists, they began to study how the different tissues of plants and animals and their functions are altered by changes in environment. And then we began to understand that what we described as 'adaptations' was nothing but changes produced in *the organs and the intimate structure of tissues by the altered surroundings themselves*. An increased or diminished assimilation, a greater or smaller activity in the preparation of the food reserves in the organism, a change in the composition of the sap of the plant or the blood of the animal—changes, in short, in the physiological processes, due to the action of the external conditions of life—these, we learned, are the real causes and the true components of variation. And, having learned that, we began to understand *how* the external agencies *can* produce in the organism those changes which already are protective adaptations.

It is self-evident that the protoplasm of the plants is not

[33] Cf. *Nineteenth Century and After*, January 1910, p. 90 and note.

[34] If it is well worth re-reading now the *Origin of Species* in the light of modern discussions, it is equally well worth while to re-read Lamarck's *Philosophie zoologique* in the same light. One is struck on reading it now to find how much of the future work of Darwin, especially on domesticated plants and animals and modern biology altogether, was outlined by the great French zoologist (see pp. 190-194, 200-201 of the new French edition by Schleicher frères, Paris, 1907). One sees also that the idea which he attaches to 'progression' in the development of new forms of organisms is nothing but the idea which Spencer and Darwin attached to 'evolution'—that of a growing complexity of organisation—the '*composition croissante*' (p. 187; the whole passage must be re-read).

possessed of any unknown, mysterious capacity of answering irritations from the outside by corresponding 'adaptations'; but it undergoes under the action of the external forces some changes in its activity which permit the life-processes to go on with the greatest possible intensity under the new conditions to which the plant is exposed. It is these changes in the life of the protoplasm which result in so-called 'adaptive' changes in the tissues, which produce, in their turn, the 'adaptations' of form and functions of the different organs to the requirements of a new environment. This is the main substance of what we know as 'variability.'

In short, botanists acquire more and more the certitude that all the changes taking place in plants when they are placed in new surroundings can be explained, as Lamarck foresaw, by the action of the physical and chemical forces affecting their tissues. Of new 'unknown' or 'unknowable' forces they feel no need. Therefore, if Darwin's fears are justified, since a number of biologists with a metaphysical turn of mind—known as 'Neo-Lamarckians'—appeal to a Hegelian *Naturseele* in order to explain evolution, Lamarck is as little responsible for such a misreading of his work as Darwin is for the doctrines which preach mutual extermination in the name of 'Darwinism.' The reality is, that, on the contrary, those biologists who went deepest into the ideas, and especially those botanists who went deepest into the matter, do not feel the need of any other causes for explaining adaptations, and evolution altogether, but those causes which they see at work, the phenomena of growth.[35]

This is the lesson we learn from the plants. As to the animals' response to their environment, it must be discussed separately on some future occasion.

P. KROPOTKIN.

[35] As to the exaggerated 'interference of the animal's will in the formation of new organs,' of which metaphysically inclined writers have lately tried to make so much, Lamarck distinctly said (in chapter vii., devoted entirely to variation) that variation in plants is fully due to change in food, in absorption and transpiration, and in the quantities of heat, light, air, and moisture received. 'Plants have no will.' And as to animals he insisted, repeating that it is only in insects and the classes superior to them that 'sensation and effort,' originated from a need, can be effective in producing new *habits* which will contribute to modify structure—it being the function which creates the organ, not the reverse. Altogether, I am much inclined to think that it is the vulgarisers and commentators of Lamarck who have especially contributed to create a prejudice against him. It is his works that must be read—in the original if possible (his French terms requiring a cautious translation). Let us add that one ought to read also the last work of Lamarck, *Système analytique des Connaissances positives de l'Homme*, before speaking of his philosophical conceptions. Unfortunately, this work exists only in very few copies, of which the British Museum has one. I learned of it through the Russian translation, by Professor Lesshaft, in the *Izvestia* (*Bulletin*) of the Biological Laboratory of St. Petersburg, vols. iii. and iv., 1899 and 1900.

THE STRENGTH OF AMERICAN ENTERPRISE IN CANADA

A LETTER from an American firm of implement manufacturers is before me, with a proposal to establish a distributing warehouse in a town on the threshold of Western Canada. The capacity of the warehouse must be a thousand car-loads of freight—a freight car in this region carries thirty tons of merchandise.

There is nothing ominous in this for the British manufacturer, except so far as it illustrates afresh the inevitable effect of geography on trade and the potency of a tariff in a country that was industrially feeble. There is not so much inevitability about the geographical situation as at first sight there seems to be. For the whole trend and intention of Canada's development has been against the natural make-up of this continent, and the advantage of the American in Canada has not depended altogether on his nearness to the Dominion. The American implement maker wants room for a thousand car-loads in a Lake Superior port largely because his enormous home market first assured him an abundant prosperity, because of his early habit of standardising parts, and because he was quick in making and improving labour-saving devices.

Some years ago, during a tour of Lancashire industries, I visited an agricultural-implement works, in which the results of American methods had been acutely felt. The transatlantic maker had driven the Englishman out of the Australian field, partly because of mechanical excellences, but partly also because of quantity, and therefore price, of output, as to both of which a striking illustration was furnished after I had been shown parts of a mower for which there was still a demand, although the model was thirty-four years old, and had seen various curiosities that were still being made to suit local ideas as to how horses should be harnessed to machines.

In the binder, which has eliminated the scythe and hand-bound sheaf from the Western hemisphere, there are seven wooden rollers, on which the cut grain is carried to the sheaf-tying

place. Until a short time before my visit the rollers were sent to Ruabon to be turned, at a cost of eleven shillings a set, *plus* carriage. But now an American turning machine was doing the work, and the rollers, including the ironwork required to make them complete, were put into the machine at a gross cost of eight shillings and sixpence. But this factory, that was making more binders than any other in the United Kingdom, could only keep its one turning machine going ten weeks in the year, whereas in the works, the Lake Superior end of which will require shipping room for seven miles of freight cars, several machines are never out of use.

If the British manufacturer is in a hopeless position in such industries as the basic one of agricultural machinery, is it worth while discussing for his behoof the question of his supplying the Canadian market, either by direct export from England or by the establishing of branch factories? It is certainly worth while unless the blessed faculty of adaptation has forsaken the British race.

The employment of capital for manufactures in Canada is largely conditioned, if it is not absolutely governed, by tariffs. The American is here because of tariffs. The Britisher is here almost by accident. The Britisher has not had the spur of contiguity that the American has had; the American has not become rooted in markets all over the world and 'set' in all his ways as the Britisher has. It is not fair to talk as though the British manufacturer should have concentrated on Canada, for the Dominion, however important it now is, and however important it may and certainly will become, is still only a minor part of the field from which Britain must draw her commercial sustenance. Among the most enthusiastic believers in the development of British trade with the overseas dominions are some who try to understand the deepest currents of commerce on this continent, and who do not disguise their anxiety about the ultimate position of the British trader in Canada. It is not the business of his Majesty's Trade Commissioner in Canada to write prophetically, but the creation of his office is sufficient proof of an apprehension that must not be neglected, as to which I shall have something to say later.

That a greater proportion of American-made than British-made goods comes into this country is due to many things besides the aforetime British indifference to the Canadian market. The proportion of American business with us is even greater than Government returns indicate. Fundamentally, the proportion of British goods used in Canada is smaller than any statistics can be made to prove, for so very many of the goods made in Canada are of American origin. The Rational Policy that won for Sir John

Macdonald the General Election of 1878 produced a tariff that brought American factories to the Canadian side of the border. It is a revelation to high-and-dry free traders to learn that but for the tariff wall built by Sir John Macdonald the chances of a fusion with the United States would have been greatly strengthened. Though agriculture is the industry by which we all live, the lonesome farm cannot, under present conditions, carry a very large population. For many years Canada suffered rather painfully from lack of population, not merely because population did not come to her borders, but because there was a leakage to the United States of her best young people that was more like a wholesale emigration from a forlorn country in Europe than the sign of the building up of a new, strong Britain beyond the seas.

The tariff brought American factories to Canadian soil, and so far provided a market for Canadian farm produce that could not have been sold to factory workers across the line. If something had not been done to stimulate manufactures, Canada would have been chiefly a hewer of wood and a grower of grain for the Old World and the New, and would have received the inferior respect which the farmer and forester are offered. When there is perfect justice in the world Cincinnatus will be the true master of us all. But this will be an imperfect world long after we are all dead.

The farmer is slow to realise his strength. He breeds college presidents and millionaires, and leaves his legislating to lawyers, doctors, and professional exploiters of his simple honesty. If Canada had been content to buy her goods from across the line the drain of ambitious youth to the United States would have continued indefinitely. In a few years the American people would have seen the error of their abrogation in 1866 of the Reciprocity Treaty of 1854; and, by throwing open their markets to Canadian produce, they would have fanned the feeble fusionist flicker into a blaze, and the apparent destiny of geography would have been fulfilled. But now, of all the Canadians who thought well of unrestricted reciprocity—they never mention it now, and they do not desire others to mention it—Goldwin Smith is left,[1] a lone prophet of the fusionist creed. And his is altogether a long-distance vision, and not a practicable policy.

It is not necessary to worry about what would have happened if no tariff wall had been built—it is enough to look at the situation as it is. Any revival of the fusionist propaganda would have arrayed against it all the forces which of late years have renewed and enlarged our ties with Great Britain. If there were nothing else, American industry in Canada would be a mighty factor

[1] Professor Goldwin Smith, a frequent contributor to this Review, died shortly after the proof of this article had arrived in England.—EDITOR, *Nineteenth Century and After*.

against commercial and political unity. The fact that the American has spent money on a plant in a given place will not prevent him moving his plant if he can see ultimate money in a change. Many an American has climbed to fortune over a scrap heap. With him first cost is first cause. When cause is shown he makes rubbish out of machinery while the rest of us would be lamenting the possibility of a change. Raze the tariff wall by converting the provinces into states, and the reason for many factories remaining where they are would vanish, and the industrial future of what was once Canada would be overcast. The creation of industries by reason of our magnificent water powers would go on, of course. But the present interests of all who work in factories and of the multitudes who supply their needs would be threatened; the tariff would be recognised as a veritable bulwark against disastrous dislocation, and the foundations of the political deep would be broken up. Every piece of commercial legislation in Canada and the United States furnishes eloquent examples of how legibly money can write in statute books when once it has acquired the habit.

If the tariff fixes the relations of Canada and the United States, and if it is also an irremovable quantity in the attitude of Canada to the United Kingdom, can the relative slowness of increase in British trade with Canada be overcome? The answer is with the British manufacturer rather than with the Canadian purchaser, always provided he is not unduly handicapped by transportation charges. The principal trouble hitherto has been that British goods have been made with too little regard for Canadian tastes, too little appreciation of the progress of competition, and too little attention to rivals' efficiency of distribution—which may be said of British trade in other parts of the world. Assuming that the British manufacturer has learned that it is better to spend his strength in making what his customer wants than in trying to convince him that he ought to accept what is offered, can the British trader grow in favour with the Canadian customer?

No condition can apply universally. One trade's meat may be another trade's poison. Some British products reach Canada by dint of much competition. Others could do better than they do, if their purveyors would learn that the buyer is king in a competitive market, and that the agent is more than a mute recipient of condescension. An English wholesaler toured Canada with the idea of selling suits to measure, made in London—not the highest class of business, but the kind to which he was accustomed in the Old Country. He could put a durable suit into Toronto for seven dollars and a half. He complained that he could get nobody to handle his line. It turned out that he offered prospective agents

a 5 per cent. commission—thirty-seven cents per suit. He could easily have obtained ten dollars a suit, have given his agent a 30 per cent. commission, and have established a flourishing business.

I will not discuss the question whether a protective tariff in Britain will damage the British manufacturers in territory where they now have to fight hard for orders. Some manufacturers say that their very small profits can only be secured by shaving to the quick the cost of production. It is for them to ascertain whether, with taxed food, they can keep down wages and the cost of production, and improve their prospects in the Canadian market. Some have already decided to establish branch works in Canada. But branch works in Canada cannot satisfy the demand for work in Britain for British people, except so far as they can utilise materials partly manufactured in Great Britain, which would otherwise be manufactured elsewhere. The emigration of capital and workpeople may make more problems than it settles. In any case, the larger trade questions will not be settled by discussion that diligently harks back to vanished advantages, but by the logic of events spread over many years.

British capital needs more work than it can secure at home. Under any circumstances, it will find expanding employments in Canada, the chief of which will continue to be in railway construction. Municipal securities will absorb vast sums, as they have been doing for the last decade. Whatever may be said by a few disgruntled men about a Conservative Government in Ontario destroying the credit of the premier province—a line of criticism which seems tactless to an uninterested person who has watched the course of the Government with some care, and, finally, with admiration for its restraint—there will be no decline in the esteem which Dominion and Provincial issues enjoy on both sides of the Atlantic. In that connection, it is worthy to note that the people of Ontario have taken up issues offered them by their Government with an alacrity that has irritated the enemies of Sir James Whitney.

The field for investment in Canada must be an enlarging quantity for a long time to come. It will be so partly because of the incursion of the American, chiefly as farmer and as manufacturer, and also as railway builder. The Great Northern, freely called 'Jim Hill's road,' has five hundred and fifty miles of line in Western Canada, most of it in British Columbia. It has bought a great deal of property for Winnipeg terminals. Its extension across the prairie province is promised. Its advent is one of many conclusive proofs that the Western Provinces are at least as good as the Western States.

The American is pervading Canada to an extent which, even

if no great forces were coming across the Atlantic to develop the first of the British Dominions, would assure to the West a growth similar in kind, and equal in degree, to that which within the last two decades has transformed the Western half of the Mississippi Valley from territories of the impecunious pioneer into abiding places of a flourishing, ambitious, reading, comfort-loving people. The opportunity that is good enough for the American is, or should be, good enough for the Britisher. Observed from any point of view, the situation is more than worthy the scrutiny of all who care about British influence in men, money, or manufactures.

There is a temperamental difference between the British and American investor in Canadian undertakings—the Britisher is far more careful about the details of management that are confided to his representatives. The American looks over the ground, decides to put his money into the game, finds the right man—or the man he thinks is the right man—settles a line of policy, and looks for results. He does not worry unless the results do not come; and then he changes the name at the head of the pay-roll.

British principals are more frequently unwilling to put real confidence in an agent. There is a universality about the Downing Street habit that almost excuses its peculiarities. No country is immune from it. The clerk in the head office in New York, who does not know the difference between a cog-wheel and motive power, thinks he is superior to the man on the frontier who is keeping the business alive. The habit is certainly strong in the land of the original Downing Street; but it is not as deserving of criticism as some men of wide experience on this continent believe. British money that comes to Canada is, in the main, 'safe' money. A high, but not speculative, rate of interest is easily obtainable. When 7 per cent. can be obtained on city property in Edmonton, with practical immunity from risk and almost a certainty that the property will steadily increase in value, there is an inducement to the investor accustomed to something more than half that rate of interest, the very strength of which makes him watch very closely the least event in connexion with his venture.

The element of proximity is in favour of the American investor. Chicago is nearly seventeen hundred miles from Edmonton—a mere nothing to a man accustomed to spend nights in the train, but a vast distance to people to whom Constantinople is in the mysterious Orient, although it is as near to London as Edmonton is to Chicago. The most fervent Imperialist who regards things from the meridian of Trafalgar Square cannot help feeling that there is something strange about the Saskatchewan Valley—even though it is a great asset for the Empire, the future

home of millions of British-speaking people. He talks constantly of how different everything is from what he has been accustomed to at home. The Chicago man who comes to the Canadian West is perfectly at home. He compares the things he sees with what he remembers of his own country quite recently; and he finds them pretty much the same, only better.

Instead of the safe rebellion against accepted canons of law and conduct which distinguishes infant communities in his own country, the Chicagoan discovers that law and order preceded settlement in Western Canada, and in the Royal North-West Mounted Police he finds a monarchical institution that delights his social sense as much as it instructs his patriotism. Where the Imperial immigrant finds novelty, not to say a most tantalising rawness, the American sees the surest proofs of security. He knows that the country is good—he has seen much less excellent country transformed from solitary waste to abounding affluence in a very few years; and his optimism about the country means also an optimism about the men to whom he commits his interests. Faith begets faith, and together they beget money-making works.

Although the growth of American investments in Canada has been phenomenal, only a beginning has been made. I travel about forty thousand miles a year in Canada and the United States, and come in contact with all kinds of business men. Every time I visit the United States I am more than ever impressed with the Americans' extraordinary virility, enterprise, and optimism, and with their increasing regard for everything Canadian. Lest I may appear to be a prejudiced witness, I will present a sort of symposium that is as trustworthy as it is illuminating.

Mr. Richard Grigg, his Majesty's Trade Commissioner for the Dominion, whose extremely able 'Report upon the Conditions and Prospects of British Trade in Canada' ought to be at the hand of every man who wishes to understand the commercial possibilities of Canada, estimated that, upon the basis of figures then obtainable, there was invested in industrial concerns in Canada one hundred and twenty-five millions of American dollars in 1906. The estimate was more than moderate.

The *Monetary Times*, the oldest and most cautious, as it is the most brilliantly edited, of the commercial journals of Canada, has recently published the results of a prolonged gathering of data upon this subject, which indicate that Americans have invested two hundred and fifty millions in Canada, exclusive of farmers' capital. The *Monetary Times* says:

> A form was sent to each United States firm having a branch in the Dominion, while letters and forms were also sent to five hundred correspondents. Only a small percentage of these forms were returned with all the

questions answered. Others were sent back on condition that the *Monetary Times* published only the aggregate United States investment in Canada. Other companies stated that part of their capital was Canadian and part United States. Some, although circumstantial evidence is somewhat against them, denied being a Canadian child of United States parents. After carefully checking these forms with information received from correspondents and the *Monetary Times'* branch offices, the following figures represent approximately United States investments in this country:

	$
175 Companies, average capital $600,000	105,000,000
British Columbia, mills and timber	58,000,000
British Columbia, mines	50,000,000
Saskatchewan and Alberta, lands	20,000,000
Lumber and mines in Alberta	5,000,000
Packing Plants	5,000,000
Implement distributing houses	5,000,000
British Columbia, lands	2,000,000
Total	$250,000,000

The *Monetary Times'* list of American firms in Canada shows that they are widely distributed. Toronto is the chief headquarters of American enterprise in Canada, fifty-three firms being listed. Montreal comes next with eighteen. Hamilton has eleven houses, including the largest of the industries. Under Winnipeg are twenty names, twelve of them of firms handling grain—a business in which the American is supereminent. Both lists and estimates can only be approximate. Many houses are either carried on entirely by American capital, under Canadian charters, or have Canadian charters and some American capital. Several which owe their origin to American courage have British affiliations. For example, the Dominion Car and Foundry Company of Montreal, employing twelve hundred men, which ranks as a Canadian concern, was entirely American, but it has gone into a merger, the ultimate control of which is said to reside in Great Britain, although the orders are still obtained by shrewd gentlemen who gained their experience in the United States.

The growth of Eastern Canada is chiefly dependent upon the expansion of Western Canada. The agricultural population of Ontario has not noticeably increased during the last decade. Mining has brought some population to the northern half of the province.

The increase in the population of Ontario, as of the rest of Eastern Canada, is due to manufacturing development and mainly on Western account. Ability to supply the home market has increased, of course; but the Western impulse is the dominating factor in the situation.

What this means may be gathered from the rather striking case of the Canadian Northern Ontario Railway. This railway will presently be a part of the Canadian Northern

Railway, which already has four thousand miles of line between Lake Superior and the Rocky Mountains, and which, through its contract with the British Columbia Government to build from the Yellowhead Pass to Vancouver within the next four years, will, it is believed, become a transcontinental railway before the similar undertaking of the Government stretches from tide-water to tide-water.

The Canadian Northern Ontario Railway has been building during the winter—for railway construction is not stopped by the seasons here—the first hundred miles between Toronto and Ottawa, through the most excellent farming country on this side of Lake Ontario. While it is good to have an additional railway in this territory, it is the simple truth that it would not be built but for the development of traffic with the West, which largely means traffic in manufactures. It is the West that made the Canadian Northern possible. It is the Canadian Northern that has produced the Canadian Northern Ontario in districts whose factories flourish because the West flourishes.

You are always driven to look westward for the sure and certain signs of what the future is going to bring forth. I have obtained from competent authorities observations on the part which the American is playing in the extra-agricultural expansion of the Western Provinces; and will give in their own words something about Prince Albert, Saskatoon, Calgary, and Vancouver.

Prince Albert is on the Saskatchewan River, on the edge of the forest region, which has an immense supply of fine timber to draw upon for the basis of a great industrial future. Mr. T. G. Woodward, Secretary of the Prince Albert Board of Trade, writes:

> The only outside capital to amount to anything invested here is represented in the Prince Albert Lumber Company, an American institution with headquarters at Thief River Falls, Minnesota, whose mill on the Saskatchewan River has a capacity of 2,250,000 feet per week. There is, of course, British capital here in the shape of mortgages. The city debentures are all held in Canadian hands, and a majority of the loans on the big buildings are also from Canadian institutions. But, speaking generally, about 50 per cent. of the investments in Prince Albert, real estate and otherwise, come from American sources.

Saskatoon is the centre of the most extensive wheat-growing area that is left to this continent, in the heart of Saskatchewan, the five-year-old province whose production of wheat in 1909 was exceeded only by Minnesota and North Dakota—90,215,000 bushels from 4,085,000 acres. Mr. F. Maclure Sclanders, of the Saskatoon Board of Trade, says:

> Such industrial life as we already possess is to a very considerable extent due to American capital. Not a shilling of British money has been put into Saskatoon industries. Several American houses have agencies or branches.

The International Harvester Company, of America, did business amounting to 1,250,000 dollars in Saskatoon last year—more than at any other place on the continent. Most of the goods sold in this city hail from the United States. Good building bricks come from Wisconsin State and Chicago. Our building for 1909 was nine times greater than for 1908.

British manufacturers show little interest in our market. One is astonished at the prices paid here for many lines of American manufacture which could be more profitably supplied from Great Britain. We would gladly do business with our brethren at home, if they will grant similar terms to those of United States concerns. I have often been told that the Montreal agents of English houses pass documents to buyers here and then hold the goods for cash.

The American gives reasonable terms, which, in a new country where people have had little time to accumulate wealth, are absolutely necessary. Unsuitable terms required by Old Country manufacturers is the stumbling block to larger commercial relations between us. It has always seemed strange to me that, with branches in London of Canadian chartered banks and the mercantile agencies, shippers cannot in a few hours find out the quality of merchants here. The impression is general that foreigners in distant parts are better treated by British manufacturers than we are.

Southern Alberta, which used to be regarded as fit only for cattle and is now a winter wheat-growing territory, is especially attractive to Americans. I am fortunate in being able to give a letter from Mr. C. W. Rowley, an ex-President of the Calgary Board of Trade and Manager of the Canadian Bank of Commerce, which, with peculiar strength, reflects the Western Canadian mind. Mr. Rowley is a Nova Scotian, who brought into Ontario a feeling of dislike for Canada which was common in Nova Scotia for some considerable time after confederation. He gloried, not in being a Canadian, but a Nova Scotian. Several years in Ontario changed his attitude, and when he removed to Winnipeg there was a further development of his outlook. After several years' active participation in the building up a manufacturing and distributing city out of a ranchers' and remittance men's town, there comes a deliverance that expresses, through every paragraph, the full stature of a Canadian Imperialist :

We have in Calgary many institutions owned and operated by Americans, and others under the control of Americans and operated by Canadians. Our grain business, elevator business, lumber mills, coal mines, &c., are fast becoming controlled by Americans. The American land man really discovered this country in a commercial sense. The American came into this district and made wheat and other cereals grow where only prairie grasses grew before, and then he started in other lines. I enclose a list of twenty-four American concerns now operated in this city.

These people all came here with capital behind them. I cannot recall one English house that did likewise. Several Old Country people who came without a dollar have made a good deal of money. But most of them take little interest in Municipal, Provincial, or Dominion politics.

The English have invested enormous sums in Canadian securities that give a small return. Of course, this money is needed, but the man who invests and stays with his money in an enterprise that people are dealing with every

day and who takes part in public movements becomes well known and well talked of. From what I have seen of the United States people here I think most of them will become good Canadians. If we handle our schools properly their children certainly will be good Canadians, and many of them will take an interest in the British Empire and be ready to take a hand in the game should Germany or any other country show a desire to encroach on any British domain. Their fathers have been brought up rather to hate England, and it was only when the Spanish War came that they began to show a much more friendly spirit.

I know of no place with better opportunities for capital than Western Canada. A man who considers it a privilege to help in the upbuilding of this country is bound to get on. If he has a little money, so much the better; but I would rather see a thousand young men from the Old Country with only brains and brawn and willingness to use them than half a dozen men invest a million and go back home and simply draw interest from the investment.

The following summary of British Columbia conditions is from Mr. R. B. Bennett, who has a unique knowledge of the whole trend of business in the most British of all our provinces :

In British Columbia there is scarcely any British capital. In sawmills, in mining, American money is equal to all else combined. In manufacturing, outside of lumber, British and Canadian capital is in large proportion. In colonisation schemes Americans are to the fore.

Enterprises in which large fortunes have been made in the United States during the last twenty or thirty years or more have been continued or entered upon in British Columbia, wherever possible. Americans are in great numbers wherever there is money to be made quickly—timber, mines, and land settlement schemes. That does not mean that they are slow in what may be called 'still' investments. They are quick to perceive the chances, and money is no object if there is a prospect of large return within reasonable time.

They do not wait to be told. They are in most cases the pioneers. Where a Canadian or a Britisher might hesitate to invest because development had not advanced sufficiently to indicate good returns, the American sizes up the prospect, jumps in, and generally pulls out comfortably. They may not all make money, but the proportion of losses is very small.

The British Columbia sawmilling industry jogged along until about eight years ago. Up to that time the export of logs was allowed. When it was prohibited, the Americans came to British Columbia to buy timber and set up mills. To-day they control the industry, owning two-thirds of the plants in the interior and one-third on the coast. Their cash investments will total approximately 50,000,000 dollars, and they hold 75 per cent. of the 17,000 timber licences. They were not deterred by the law which provided that licences could be cancelled at the end of twenty-one years. Now they are rewarded, for perpetuity is to be granted. Their holdings will be immensely more valuable a few years hence.

Thirty years ago most British Columbians were from Great Britain, with money invested in mines. Transportation was practically nil and much money was lost. In the early 'nineties, after the C.P.R. had been built and railways in the States had crept up to the boundary, American prospectors ventured into the mountainous districts of south-eastern British Columbia. When Nelson and Rossland were founded the towns were almost completely American, and while plenty of money was lost on low-grade propositions, more than one fortune was made. American capital first connected these

districts with Spokane, which was, and is, immensely benefited by trade with British Columbia. For many years the wholesale and every line of business was greater from Spokane than from other places combined, although now it is much improved for the merchant in Canada.

At Texada Island, on the coast, Americans hold the fort, and in the Bulkley Valley and further up they are in evidence. Bulkley Valley is a new district, and accordingly the American is there to pick up what is the best, whether it costs money or not, before the other man gets in. Toronto capital is also found there. In mining, United States investments could be approximated at 50,000,000 dollars, and the other half comprises Canadian, British, and foreign.

In manufacturing, English and Canadian capital is uppermost. American capital is in the minority in the manufacture of biscuits, furniture, and such like. Large quantities of British capital are in bonds and mortgages at good interest. Bonds are also bought by Americans.

The Swanson Bay pulp industry is entirely British. Eight hundred thousand dollars has been spent and the mill is in operation. The holdings comprise over 80,000 acres of pulp timber, worth four or five million dollars. The British Columbia Electric Railway Company has 20,000,000 dollars invested in street railways, inter-urban and suburban trams, gas and electric lighting in Vancouver, New Westminster, and Victoria. This concern is steadily growing, and enjoys a popularity somewhat rare among transportation companies.

Turn now to the situation from the British point of view. In the five years ending the 31st of December 1909 Canadian public flotations in London amounted to 515,000,000 dollars, divided as follows :

	$
Railroads	252,000,000
Government	154,000,000
Municipal	33,000,000
Mining	9,000,000
Industrial, &c.	67,000,000

Private sales of municipal bonds by Canadian houses in London amounted to about 20,000,000 dollars. During the same period British investments in Canadian lands were about 6,250,000 dollars, exclusive of the Canadian Northern Railway figures, details of which had not been received. Canadian loan companies during the five years received British capital to the extent of 10,600,000 dollars—nearly all of it from Scotland. From 2,000,000 dollars to 3,000,000 dollars have gone into Canadian mining companies without public flotation. There is no means of ascertaining the amount of money invested by British firms in branch houses or in propaganda which should really be charged to capital account. Whatever it may be, the British outlay has been very much less than the American, and the appreciation of the Canadian market is correspondingly weaker.

There has been considerable investment by wealthy people who, coming to view the country, were attracted by opportunities

in different cities. If respect for confidences were not a virtue, one could tell interesting stories in this regard.

Here is the crux, the irony, the vexation, and the instruction of the extraneous financing of Canadian enterprises—we lavish our criticism upon those who enable us to do most for ourselves. We rejoice over the American, even though we may be a little afraid of him. We criticise the Britisher, and ask for more of his help. Whom the Lord loveth He chasteneth; and we are most like the Lord in this respect. Two hundred and fifty million dollars for railway construction in five years! and in railway coaches you will hear in one day more exasperating yarns about green Englishmen than can be heard anywhere else in a month.

It is railway construction which makes fortune-building possible for our American friends. They furnish practically nothing but advice for our railway extension; but Providence has endowed them with a special faculty for reaping the first-fruits of that immense work.

The American comes over and rejoices in the superior safety of our towns and the more blessed quietude of our villages, in comparison with his own frontier settlements, but he has no need to think of the people in the British Islands who do so much to supply the means of peace and plenty in all our ways.

Money talks, as I have said, but when it talks with an ultra-English accent it produces a wonderful effect upon American ears. Said a young Englishman to me a few months ago, 'Isn't it odd to think that one could make a fortune on the vaudeville stage in the United States simply by talking as one does at home?' It is not in the nature of the honest borrower to be sentimentally grateful. He knows that the lender lends for his own benefit, and not for the borrower's. When you have a gilt-edged security you owe your creditor 4 or 5 per cent., and that is all. Still, there is no reason why sentiment and 5 per cent. should not travel hand in hand, or why you should not do business with your friend rather than with somebody whose view of you is purely mercenary.

Indeed, there is nothing in the wide world so fascinating or so important as the combination of sentiment and business, on which we all hope to see the British Empire flourish more abundantly than it has ever flourished. Let me offer two or three considerations that arise from the truth that sympathy is more than investment, and understanding is greater than dividends.

The Ottawa correspondent of the *New York Herald* told me that, in discussing Canadian-United States relations as they affected the growth of his great enterprises, Mr. William Mackenzie had told him that Canada, if she had become part of the United States, would have developed faster than under the British flag, but that that was nothing compared with the advan-

tage of being a part of the British Empire. Mr. Mackenzie is supposed to be impervious to sentiment, but his friends know that that is just where he is strongest. The dividends are here for anybody who cares to earn them. The sentiment is something that belongs to the Mother from whom we came.

There is an obligation, even upon the mothers of grown-up daughters, to give love for love. In the happy phrase of our French Postmaster-General, we have an intellectual preference for Britain. It has been shown in other ways than in a desire for more distinctively British literature. It is not as contingent on a reciprocation of the 33⅓ per cent. tariff preference as some eager men suppose. But we desire above all things a greater appreciation of our distinctions. It is still seasonable to hint that you can never have a second England in this Dominion. You must be reconciled to, if not delighted with, a relative who loves you, but who resembles that long-lost member of the family, now an independent republican neighbour, who is returning to fellowship, if not to possession, *vid* a feminine devotion to the peerage.

There must be more numerous exchanges of visits between you and us. In recent years there has been a great improvement, from our point of view. It is becoming understood that Canada is neither in the backwoods nor in the depths of social innocence. It will also be found that Canadian industry is as safe for one of the blood as it is for the American, who is really a very decent fellow and chooses his company wisely. Some excellent persons believe that many adventures of English capital in Canada have failed miserably. Where that has been the case, it was almost invariably because of inferior acquaintance with the governing conditions of the enterprise, or an excessive regard for English management, just because it was English. Happily, we have almost arrived at the point where an Englishman who has proved his capacity in England, who has taken his talents overseas and has there enriched his experience, is not regarded as having become inferior in quality by the process that has made a bigger man of him. When one thinks of the advance in knowledge that has been made during the last decade—an advance that has not been confined to the British side of the relationship—one is content to thank Heaven for it, and to long for more of the fruit from a thrice-blessed tree of knowledge.

There is always something to encourage those who look for signs of grace. The newest and best sign that one recognises has been imperfectly observed by most of those who sit in the gate. It was furnished primarily through the wisdom of the British Government in establishing what is virtually a consular service in Canada—his Majesty's Trade Commissioner in the Dominion and his correspondents. Too little notice has been

taken of the first productive step taken by the British Government to promote trade relations with the Dominion. Where others had talked, Mr. Lloyd George sent a commissioner to learn the facts. When the facts had been presented, Mr. Winston Churchill appointed the best-qualified man to be the permanent official of the Board of Trade—the only representative of the Imperial Government in Canada whose salary is paid by the Lords of the Treasury.

It is widely believed that there is something in the atmosphere of Whitehall that discourages the management of national business on twentieth-century lines. In the Trade Commissioner there is discoverable a new facility, a new bond, a new asset as between the customer in Canada and the manufacturer in Britain.

It is the dullest truism that the British manufacturer who is competing in the Canadian market against both Canadian and American producers needs the cheapest rates that the quickest steamship service can give. Hitherto he has been subject to the decrees of an alliance of shipowners, over which the Board of Trade, so far as Canadian transactions are concerned, has previously exercised a very limited scrutiny. On this continent there is a tendency in the trading community to give small heed to comparatively small increases in rates, because the consumer is generally considered to be a remarkably enduring quantity. The average man here does not live so near the pinching line as he does in the United Kingdom—the proof of which lies in the outrageous increases in the cost of living, which only began to evoke serious protest long after a similar condition would have caused bread and meat riots and have upset constitutions in older lands.

A few years ago dry goods were brought from British ports to Boston for the Canadian market at 8*s*. to 10*s*. per 40 cubic feet. When a certain steamship line running to Boston went into a merger the rate was increased to 12*s*. 6*d*. The rate has steadily increased until under the Canadian North Atlantic West-bound Freight Conference it is 22*s*. 6*d*. Last December it became known that 20 per cent. was to be added to the rate. There are knowing prophets who are assured that 35*s*. is the true measure of the Conference ambition. When the Montreal and Toronto Boards of Trade of Canada heard of this proposed increase they passed resolutions and sent a deputation to Sir Wilfrid Laurier, with a view to preventing action which must tend to increase the cost of living to the Canadian consumer and to handicap British manufacturers in the Canadian market. It is probable that the Boards of Trade in Canada had before them the chapter on Transport in the Commissioner's Report to the Board of Trade.

The abolition of the German surtax illustrates and enforces

afresh the propriety of the appointment of a British Trade Commissioner. If the old *laissez faire* had persisted we should have had the spectacle of Great Britain doing nothing to promote transactions with her own kin, while she supported a consular service to promote intercourse with the stranger in all the foreign ports of the world, and while Germany was carrying on a propaganda for the development of her trade with the Dominion. The surtax has not been removed without much German manœuvring to avoid the clearest appearances of a climb-down. If the German missionary work had been done a year or so earlier there would have been no representative of the British Government on the look-out for what was coming. As it happened, the Board of Trade was on the alert, and though it could not do much, it was at least well informed, and it is in a position to assist British manufacturers to prepare for a more strenuous competition than they have had to fight for several years.

The German Government was not officially represented in the emissaries who toured Canada last year in furtherance of the views of the German Economic Society. Boards of Trade were seen, newspaper editors were charmingly interviewed, business leaders were waited on, and able correspondents came over to do good work for the Fatherland.

Tariff or no tariff, the Germans are coming back to the Canadian market. The conditions are different from what they were when Canada and Germany were bowing each other out of the back door. The sales of Germany to Canada in 1903, when the surtax was imposed, were 12,282,637 dollars. Last year they were 6,050,365 dollars. In the last seven years the foreign trade of Canada has increased by over 20 per cent.

The capacity of Germany to compete in foreign markets has also enlarged. If much of the oratory of last December and January is to be believed, the capacity of Britain to satisfy markets everywhere has pitifully declined. So, on the whole, we seem to be left to the conclusion that the chances of the Britisher against the Teuton are poor.

But, whether we mourn or magnify, according to our political affinities (and somewhat according to our common sense), the door is more widely open to the German than it was. We know enough of the German to be quite sure that he will come into the market with a vim and a determination to find out what we like, that has not always distinguished some of our dearer friends.

The newspapers here signalised the signing of the agreement by giving prominence to interviews with leading business men, all of whom were joyful over the prospect opened up by it. Two years ago there was not even the apology for an organisation in Canada that would be to the Imperial Board of Trade what the

archdeacon is to the bishop—his eye and monitor. That we have a real live Commissioner loaded with the kind of knowledge and experience that British manufacturers need, is verily a sign of grace and a ground of hope. Of course, we do not think the Board of Trade makes nearly enough of its opportunities—a failing that rather pathetically attaches to our own Department of Trade and Commerce. We would like to see and hear more of the one business representative of the Crown who dwells among us; and no doubt our wishes will be gratified in due season, if we faint not. Meantime, we are glad, and desire only to be made more glad.

When you have estimated the range of such a school of influences as the British Trade Commissionership has begun to open up, how much nearer are you to ensuring an even more British complexion to Canadian affairs? No man can say. It is in no way invidious to call attention to the great speed of the American advance into Canadian life. It is creditable to them, agreeable to us, and hortatory for you. Four hundred thousand immigrants have come to us from below the line. Naturally, they are fond of American-made goods. But they are taking the oath of allegiance, and honouring their new affiliations. They do not love Indiana less because they grow to love Saskatchewan more.

Their money is propagative. Their personal morale is exhilarating. Their ideas of political virtue are sometimes more crude than they suppose. They, as well as their new compatriots, are beginning to understand that there is something in that respect to be gathered from the land at which the Declaration of Independence was hurled, and in which the principles of the Declaration have been worked out to more exceeding advantage than in the place where they were transcribed. The inflow of American people and capital is a portentous ingredient in the process of making a new Western people, who will be distinguished from their Eastern Canadian as they are from their British brethren. As to what they will be like, and what they will do, and where their minds will be attached—that, indeed, is a speculation. It may easily become a British investment.

ARTHUR HAWKES.

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SHOOTING FROM THE SADDLE

WHETHER cavalry must depend on the rifle or on the steel in the wars of the future is a burning question. Our own authorities practically ended by abandoning the steel in the course of the South African war, but they have recently gone back to it. This reactionary move of theirs has, however, been recently challenged by Mr. Erskine Childers in his book *War and the Arme Blanche*, to which an important preface has been contributed by Lord Roberts, who definitely upholds the rifle. If the magazine-rifle supersedes the steel, the horseman so armed must acquire sufficient skill with it to be complete master of his weapon, not merely when on foot but also in the saddle. What seems doubtful so far is whether ordinary troopers can acquire the skill, and, if so, whether they can be trained to use it with effect on the field of battle. Practical tests, carried out in peace time, are the obvious means of solving this question, but it will be worth while also to examine the results obtained by mounted Boers making use of their Mausers on horseback during the later stages of the war.

Mr. Childers has been at the pains of analysing these results in a number of instances, out of which we may select three typical fights, Yzer Spruit, Tweebosch, and Roodeval. Although the author gives a comparatively brief account of each of these in his present work, he has previously described them more fully in Vol. V. of '*The Times' History of the War*.

The South African war in its second year had become purely a matter of guerilla operations, but De la Rey, the skilful leader of the Boers in the Western Transvaal, was still able to keep the field with from two to three thousand burghers. Two years' service had turned the farmers into veterans; the more so that De la Rey's men represented the pick of the commandos, for by this time the feeble and faint-hearted had surrendered, and only the stoutest and staunchest stayed by him. But De la Rey understood well enough that even if his burghers were far better fighters now than they had been at the start, yet time was telling against them. Lord Kitchener had begun to draw the net closer, and to

all appearance he disposed of boundless resources, while De la Rey's own were perilously near exhaustion. Ever since the Boer supply of ammunition from Germany had been shut off it was only by the capture of a British convoy that De la Rey could replenish his dwindling stock of cartridges; without cartridges he could not fight, and he was ready to take a big risk in order to get them.

On the 23rd of February 1902 von Donop, commanding the British forces at Klerksdorp, the terminus of the railway running west from Johannesburg, was expecting the return of one of his convoys which he had sent to replenish the stores at Wolmaranstaad, fifty miles away. The convoy was returning light, but along with it were three carts loaded with small-arm ammunition, now the most precious of treasures in De la Rey's eyes. It was escorted by Colonel Anderson with two guns, a pompom, and some 700 men, about half of whom were Regulars. After two days of quiet and unmolested travel across the veld, the convoy went into camp on the night of the 24th of February near the Yzer Spruit, only thirteen miles from Klerksdorp. But, as they travelled, Liebenberg, of Potchefstroom, one of De la Rey's most trusted vecht-generals, had marked them down; by the heliograph and by his ubiquitous scouts he kept De la Rey fully informed of every move; that night the Boer leader massed over 1200 men under Kemp and Celliers along the line of the convoy's road, and in some thick bush at the descent into the Jagd Spruit an ambush was set under the crafty Liebenberg.

The unconscious convoy broke camp at 4.30 A.M., while it was still dark night, the infantry marching close to the wagons and the Yeomanry in front and at the rear. They saw nothing to arouse their suspicions, and just as dawn grew grey the advance walked right into the ambush, whence Liebenberg's well-posted burghers poured in a withering fire at twenty yards. Immediately Kemp and Celliers rushed up with their commandos and fell upon our centre and rearguard. It was a truly appalling position for the unfortunate British troops, but the Regulars were disciplined men, and the Yeomanry of the escort were not raw drafts from home; they had received their baptism of fire before, and now, although surprised as well as outnumbered two to one, they rallied and stood to it stiffly; the guns came into action; they beat back the attacks of Kemp, Celliers, and Liebenberg once, they beat them back the second time, they beat them back the third time. The British lost heavily, but they refused to know they were beaten, till after all it began to look as if De la Rey would be baulked of his prey. The Boer general saw that it must be now or never, and in the growing daylight he ordered a general charge on horseback with fire from the saddle. His veterans obeyed him.

The storm of Boer horse broke through the rearguard, the weakest part of our defence, and once inside the lines they rode clean over the guns and the rest of the troops, shooting down right and left all who opposed them. Our troops had made an honourable fight of it, but a quarter of their number had fallen, and that final rush of mounted riflemen was overwhelming; the entire force with the guns and the convoy fell into the hands of the enemy; De la Rey had obtained his much-needed ammunition, but that was not all: he now knew for certain that the Boer horsemen could charge, firing from the saddle, and charge home.

This business of shooting from the back of a horse is not quite so simple as it sounds. Forty years ago, when I had a ranch out on the frontier in Colorado, I had opportunities both of trying it myself and seeing others try it. The first antelope I ever shot was on East Plum Creek; I was using a shot-gun with buckshot, and though I hit him at a hundred yards he only ran off wounded. I jumped on my horse to give chase, but three Ute braves, down from the mountains for a buffalo hunt, dashed in ahead of me, and it was a wonderful sight to see them on their swift buffalo ponies turn and twist after the antelope, firing their old Hawkins muzzle-loaders from the saddle. I noticed that these Utes, who used Spanish bridles, dropped their reins, guided their ponies by their legs, and handled the heavy rifle with both hands. It was not long before the buck I had wounded was their antelope; I was vexed to lose him, but that chase was a revelation to me of what men bred up to ride and shoot from childhood could do. A year or two later, out on Rush Creek, I saw Tom Russell, a Texan, run a buffalo bull on Darky, a fast cow pony. Darky had never been broken to buffalo, and the smell of buffalo was always at first highly alarming to horses. So Darky quite declined to go up to the game, and it was most instructive to me to see how quick Tom changed his aim as he fired now over the right side, now over the left, and how while firing he also managed to use the reins and spurs so as to keep the horse within some sort of possible distance for horseback shooting. Tom succeeded in getting his buffalo all right; for in this case, although the horse was untrained, the man was a first-class rider and shot. De la Rey's Boers, like the Ute Indians and the Texas cowboy, had been brought up to their business; they knew the game perfectly and so did their horses also.

Where man and horse are alike unskilled, things are apt to work out differently. A certain tenderfoot named McTaggart, a fat clumsy man, proceeded to start a sheep ranch near Crow's Roost, some twenty miles from my ranch. An old buffalo bull came in there to die—we used to believe that old bulls returned to their birthplace when they felt the end approaching—and

McTaggart started out to get some bull meat, riding, of all things in the world, a green American mare, barebacked; he had armed himself with a shot-gun. Of course the sight and smell of the buffalo scared the mare; she shied violently, and the sheepman fell off; the buffalo charged him as he lay; he managed to let off his gun, and by the greatest luck broke one foreleg. After that the crippled buffalo chased him in increasingly short circles, until young Jackson, one of his herders, arrived on the spot and finished the buffalo. McTaggart's escape was really a hundred-to-one chance, though he seemed very proud of himself when I came up a little later and found them stretching the bull's hide. In those days it really did look as if Providence kept guard over tenderfeet.

I met a man once, whose name I forget, but he was one of the American engineers engaged in constructing the Kansas Pacific Railroad, out on the plains east of my ranch. One day he had gone alone to drive some stakes ahead of the grade, when a marauding band of Cheyennes saw him and gave chase. The engineer had a first-rate horse, and not unnaturally he ran for his life, and was able to distance all but one of the party. This one particular Indian, however, was riding a splendid war-pony and closed on him. The American had a Spencer rifle, a seven-shot magazine arm, the repeater then carried by the U.S. cavalry. The Indian fired several shots with a pistol at him, fortunately without effect, and the American, who, after all, was only an engineer and not a cowboy or buffalo hunter, holding the Spencer backwards over his shoulder, blazed back wildly with equal lack of success until he had emptied his magazine. At least the Indian thought he had emptied it, and so did the engineer himself. It is not easy to keep exact count of your shots in such a race for life. Anyhow, the Indian rushed his pony up alongside the other man's horse and swung up his tomahawk to strike him down. The rider, in desperation, with one hand pushed the empty rifle against the red-skin's body and pulled the trigger. Bang! she went, for there was a cartridge left, and down went the red-man headlong to earth. But it was more good luck than good shooting that saved the white man's scalp. Fortune once more had favoured the tenderfoot.

To return to South Africa. News of the disaster at the Yzer Spruit was not long in reaching Methuen at Vryburg, and that eager and hopeful fighter hastily got together a force of 1300 men with four guns and two pompoms to chase De la Rey. Unfortunately his force was very much mixed; in fact, it was actually made up of fourteen different units; there were, indeed, some Regulars as well as some good Yeomanry, but there were also raw drafts from home who had never seen a shot fired, and there

were some local levies of even less value. Methuen was well aware that the majority of his mounted troops belonged to this untrustworthy class; nevertheless, his gallant spirit urged him to march in the hope of being able to join forces with a column of better quality under Grenfell. Unhappily for him, De la Rey was equally well aware of the fighting values of the different British columns, and skilfully manœuvred to fall upon Methuen alone.

On the night of the 6th of March 1902 Methuen was at Tweebosch, some fifty miles north-west of the Yzer Spruit, and broke camp early on the 7th. By dawn the slow train of ox-wagons in front was just reaching De Klip Drift, on the Great Hart's River, when he found his rear fiercely assailed by a cloud of De la Rey's skirmishers. Methuen did the best he could, closing up the convoy and extending the Regulars so as to cover it, bringing his guns into action, and pushing forward a double screen of the mounted troops to fend off the assault. But De la Rey brought up his burghers, as was noticed, in more regular lines than was usual, three waves of them galloping one after another to within effective range, leaping off, and pouring in a deadly fire from cover. The British rear, where the less satisfactory troops were posted, began to give way, and the Yeomanry in the second line were sent forward to reinforce them. Now De la Rey saw his chance to repeat the successful tactics of Yzer Spruit, and he ordered his fourth line of skirmishers to charge home firing from the saddle. On they came with a rush that was not to be denied; they overwhelmed the already shaken rearguard, shooting down as they rode all that stood in their way; they stampeded the fresh Yeomanry coming up, the raw drafts, and the Colonial levies, and they thus drove half the British force clean off the field in headlong flight. The other half, surrounded and placed under a withering cross-fire from three sides, could not long hold out. The general himself went down with his thigh broken by a shot, and the inevitable surrender followed. Within two weeks the Boer leader had won two complete victories, and in both the turning-point had been this new method of a charge of mounted riflemen firing from the saddle. But if the idea was a novelty, De la Rey had taken the greatest care to give the new idea every possible chance. He had made sure of having the upper hand to begin with; at Yzer Spruit he obtained it by a well-laid ambush; at Tweebosch by concentrating his attack on the rearguard, where he knew the ill-disciplined troops were. Then, again, he prepared the way on both occasions by a heavy, well-aimed fire, and he delivered his charge just when he saw the fire had told. Thus he reduced the risks to a minimum, and twice the event had justified him. No wonder that the bold spirits who led his commandos were ready to believe that their

mounted riflemen could ride over anything and everything that wore a British uniform, and yearned only for the chance to prove it.

They did not have to wait very long. There was much talk of peace in the air just then, and De la Rey himself was called away to discuss with Steyn and De Wet and the other Boer leaders the terms offered by Lord Kitchener. Kemp, a brilliant young leader, took De la Rey's place as commander-in-chief in the Western Transvaal, and put his own special commandos under the charge of Potgieter, a man of reckless courage burning to distinguish himself. No armistice had been arranged between Boer and Briton, and Lord Kitchener sent Ian Hamilton to 'drive' the Western Transvaal. On the night of the 10th of April Hamilton had 11,000 men on a front of twenty miles, extending from Kliprif on the east to the Brakspruit near Hart's River on the west, where the extreme right was held by Kekewich with the columns of von Donop and Grenfell.

During the day of the 10th of April Kemp had made a strong demonstration against Hamilton's left. But under cover of night the new Boer leader moved his mobile force of near 3000 men, keeping them well out of sight and hearing, clear across the whole British front, with the intention of turning Hamilton's right and falling on his rear. Hamilton, however, divining this, sent orders to Kekewich to extend still further to the right, and these orders were being duly executed.

Thus it came about that on the 11th, when the sun was an hour above the horizon, Kemp and Kekewich were both of them marching on parallel lines in a westerly direction, not very far apart, with only the gently sloping hills south of the Brakspruit hiding them from each other's sight. Kekewich had von Donop's column in front and Grenfell's behind, with an advanced screen of 280 mounted infantry under Major Roy to cover the columns. Presently the left flankers of the mounted infantry under Lieutenant Chaloner discerned a great body of men to the south of them, also marching west. Remembering that the day before they had been overlapped by another column, Rawlinson's, they took these to be some of our own men, a mistake which was all the more natural as most of the Boers now wore the khaki which they had taken from their prisoners. However, the presence of a military force within striking distance was properly reported to von Donop, who kept his column still moving on in marching order, but rode out to see if he could discover what these people were for himself. Kemp, on his part, could have no doubts as to these flankers whom he saw being British, and without delay he wheeled his commandos towards them and began a long-range fire. Chaloner's men fell back, returning the fire, and Major Roy

sent up some more mounted infantry and a pompom to assist them. But the odds in favour of the Boers against this handful of enemies, who were all they could see, were so great, being as much as ten or twenty to one, that Kemp decided to allow his dare-devil successor Potgieter to try the charge of burghers firing from the saddle which De la Rey had found so effective. He ignored the fact that the conditions now were different from those of De la Rey's fights; that he was ignorant of how many more troops the British might have behind the hill; that those he could see were not more taken by surprise than he himself was; and that, the range being so great, they had not been already shaken as in the previous actions by a withering fire at close quarters. The name of the farm where the battle was set was Roodeval.

'Forwards!' was the word, and Potgieter and his men, a thousand or fifteen hundred of them, cantered slowly up on to the skyline, forming line as they came. At 600 yards from the mounted infantry they halted for a moment or two, and still Chaloner's flankers could not feel quite sure what they were. It is a cruel thing to fire at your own side by mistake, and our advanced guard still thought these must be a part of Rawlinson's column, so cool and steady was their advance. Then came a sudden enlightenment. The long line of unknown men moved forward once more and galloped straight at our men, firing as they rode, thus revealing themselves to be nothing less than a whole Boer army charging. Hastily our advanced guard fell back towards the main body, which was still about a mile distant, losing severely as they went. The ground was all smooth and open, sloping gently towards the Brakspruit; and von Donop's and Grenfell's columns were still marching in close order when they saw this great mass of horsemen appear over the brow riding straight at their left flank. And still it seemed to the generals impossible that these men could be other than Rawlinson's, till a breathless rider galloped furiously up to Grenfell and shouted, 'They are Boers: all those men are Boers.'

There was no time to lose, none to form an extended line of battle; Kekewich and Grenfell wheeled all their units sharp to the left. Two guns and two pompoms came into action on the right, supported by 300 South African Constabulary. The Scottish horse, 500 strong, leapt from their horses and lined some mealie fields in the centre; on the left were 450 mounted infantry; von Donop's men and guns prolonged Grenfell's right. On came the Boers at a gallop—they were within 600 yards now—riding two or three deep and firing furiously, Potgieter, conspicuous in a blue shirt, leading them, well to the front. Six guns and 1500 Lee-Enfield rifles poured a hail of bullets in their faces, but still they came on. Men and horses began to fall, and some turned

back, but the half of them never checked their gallop till they were within seventy yards of the British line. Then Potgieter dropped dead, shot through the brain, and on the instant the line of his followers wheeled round, and in a moment the charge melted away to the rear as fast as it came, leaving behind eighty men dead or desperately wounded on the ground.

This time the rush of mounted riflemen had failed, but, as we used to say in Colorado, it was a close call. Had that charge actually got home there would have been wild work inside the British lines, though the men of Grenfell's column who stopped the rush would doubtless have stuck it out as stiffly as the best. The point for us to note is that the charge that failed was quite unlike De la Rey's. It was made upon absolutely unshaken troops: it was made with the numerical odds against the Boers: it was made with no element of surprise in its favour, except so far as the British may have felt a suspicion that the whole thing was a mistake and that they were firing at their own men.

This solid fact remains: Potgieter's charge all but succeeded; nor is it any depreciation of our adversaries to say that had those who rode behind him been disciplined like the Prussian cavalry who charged at Mars la Tour they would have gone on in spite of Potgieter's fall and got inside the British lines. What is really instructive is to compare our losses in this business with the enemy's. The Boers, as we have seen, left eighty men on the field. In Kekewich's line, up to the same time, there were sixty-three men down, seven of them killed and fifty-six wounded, while no fewer than 150 of his horses were shot and many more were temporarily stampeded; neither does this include von Donop's losses previously with the advanced guard. All this loss was inflicted by magazine-rifle fire delivered from the saddle, and it is a sufficiently striking tribute to its effectiveness that, if we allow for the damage done by the six British guns, the fire of the Boer horsemen proved at least as effective as that of the British infantry. To sum up, then, this form of charge has twice proved absolutely successful against troops which had been previously shaken, and on its third trial against unshaken men only failed by the narrowest possible margin.

A question of great importance now remains to be considered: supposing that this form of charge is to be tried, how are the men to be trained for it? How are they both to aim their rifles and manage their horses at the same time? The Boers, like the Ute braves and the Texas cowboy that I saw forty years ago, had been brought up to the business from childhood. Potgieter's men are reported to have mostly let go their reins and fired with

both hands, just as if they had been shooting buck. Those whose ponies were too headstrong for this fired one-handed, undoubtedly an awkward thing to do with a long military rifle weighing over nine pounds. Even with a seven-pound carbine, used pistol-fashion at the stretch of the extended arm, it is far from satisfactory. I have a vivid recollection of seeing it tried once when I was prospecting in Piedra Park, in the Rocky Mountains, and, as luck would have it, Garcia, my Mexican companion, and myself came on a grizzly. The park was open, with big pines scattered here and there, and the bear was partly hidden behind a fallen tree; he was so busy, I suppose, digging out an ants' nest that he did not hear us. Garcia was on a Mormon stallion and had a Winchester carbine; I myself was riding a small Mexican mule and carried a ten-pound rifle. I did not want to get off the mule to shoot, for he was very scarey; if I dropped the reins on the ground he would bolt as soon as he saw the bear; if I hooked my arm through them he might pull back and spoil the aim; and, anyway, I had on heavy miner's boots—we had been washing for gold—which are clumsy things to move about in on foot. So without delay I pulled up, raised the rifle, and fired from the saddle. Probably I missed; even if your mount is standing still his breathing shakes you, and you have to take a sort of snapshot. But at the shot the bear ran, and we after him. Do what I could, the timid mule entirely declined to go up to the bear; the stallion, however, had more courage and Garcia laid him right alongside Bruin. Pounding along behind, I saw the Mexican extend his short carbine like a pistol and bang away. It was a queer sight. Every time he fired the bear humped himself for all he was worth and only tried to spurt faster. But though the carbine went bang, bang, bang as quickly as the man could reload, not a bullet seemed to get home. Another minute's galloping brought us to the edge of the open park, and the bear disappeared in the brush, unscathed so far as we could tell. Garcia was a splendid rider, but he lacked the skill with firearms of the Ute braves or the Texas cowboy.

Generally speaking, to use a rifle pistol-wise is unsatisfactory at the best. A better way, perhaps, for one-handed work is to have a leather socket in front of the right shoulder which can receive the rifle butt, and to use the sling as an additional support for the weapon; thus the left hand is left free to hold the reins.

Probably when, as is bound to happen some day, shooting on horseback is put to the practical test here, the plan adopted will be that which Colonel Cody long ago exhibited to us at Earl's Court in his Wild West Show. He galloped round the arena on

his perfectly trained buffalo horse, Old Charley, and, taking two hands to the gun, he broke glass balls tossed up for him by an Indian boy riding in front. What man and horse did then can be done again; and, when we think of De la Rey's two great successes as well as Potgieter's splendid failure, who will venture to assert that the horse-soldier can be perfect in his art without knowing how to shoot from the saddle?

R. B. Townshend.

ETNA IN ERUPTION

'Lands deluged by unbridled floods of fire.'—*Wordsworth.*

No less terrible in its devastation than magnificent as a spectacle, was the reflection as we left the scene of the eruption of Etna which had broken out on the 23rd of March—terrible because of the indomitable forces of a relentless Nature; magnificent by reason of the stupendous sights of the cataracts of fire, and of the roar and rattle of the explosions within the craters.

Sicily has been sorely tried by that same Nature which usually treats her with tender care. Her orange and lemon groves, her olive-yards and vineyards, her cotton and rice fields, with super-abundant crops of cereals and vegetables, her orchards, and her wealth of wild flowers speak of Nature's beneficence throughout the year. But times come when its benevolence turns to anger, and it scourges where before it had blessed, and that which is usually gathered in abundance it destroys in rage and fury.

Those evil times have come to the eastern coast of Sicily within the last eighteen months. Torrential floods which carried away houses and lands, causing sides of mountains to slide into the valleys, were followed shortly by the ever-memorable earthquake and tidal wave which killed uncounted thousands of people, and destroyed within half a minute cities, towns and villages as if they had been habitations built but of the sands of the desert. Now fire has been added to those terrors of water and earth, and this, perhaps, is more dreaded than either of the other two, since it is more horrible and insistent, and the terror of it more enduring.

Until the early morning of the 23rd of March that vast southern slope of Etna which stretches from the wooded zone to the shore of the Ionian Sea was smiling and prosperous, with full promise of abundant harvests. Young leaves of a shining green were on the vines; beans were in flower, filling the air with fragrance; cherry and apple trees were bursting into blossom to rival that sea of white flower which had but recently fallen from the almond trees. Peasants—men, women and children—were at

work in the fields hoeing the young corn or digging the vineyards, laughing and singing as is their wont during their labour. The sun shone brilliantly from a blue sky. There was nothing to denote the coming catastrophe to those fertile lands.

The change came as a thunderclap to turn promise into disappointment, profit into loss, and happiness and content into woeful apprehension and dismay. The earth shook violently, thirty shocks succeeding one another rapidly; and then 'the Mountain' burst forth. 'La Montagna si scassò!' was the universal cry of alarm.[1] Yes, the Mountain had broken out; high up on its slopes, it is true, but at several different points, with a roar and immense columns of vapour and ashes which could be heard and seen at a distance of many miles.

Knowledge that a volcano is in a state of eruption is, of course, a cause of serious alarm to all who dwell in its vicinity until the outburst be located. Then apprehension is more or less centred; although when craters have opened on one side other mouths frequently appear in other places. Etna, indeed, has been often in eruption at different points at the same time.

The scene of this outbreak is about 3000 feet below the summit of the mountain, westward of the so-called *Montagnuola*, that great spur, or shoulder, of Etna which adds so greatly to its grandeur of form. The craters, some eight or ten in number, which lie almost in a straight line, are in that region which has been more volcanically active latterly. Though all the craters emit vapour, one only apparently has ejected lava. This has been named Monte Riccò, in fit recognition of the services to science of the well-known vulcanologist, the Director of the Observatories of Catania and Etna.

The outbreak was not accompanied by the electric storms which frequently herald an eruption. For some years past the dense masses of vapour and ashes which have poured from the great crater at short intervals have denoted some unusual activity. But the minor eruptions which have occurred within the last few years had led to the hope that a great outburst might not be feared. The showers of ashes and scoriæ have done no damage, as they have fallen on the *regione deserta*, or the uncultivated zone. Destruction has come from the streams of lava only. These, proceeding from one mouth and flowing several miles through stony wastes, entered first the *regione selvosa*, or wooded slopes, descending to the *regione coltivata*, where the vineyards producing the celebrated wines of the Bosco are situated. Here the devastation is great, the damage very grave.

The day we visited the eruption was the thirteenth since its

[1] Etna is called 'la Montagna' by those who live on it: it is scarcely known by any other name.

commencement. Our road from Nicolosi, the oft-threatened town which lies 2000 feet high, whence we rode on mules, lay through a desert of loose black sand, where a few spare vines and fewer trees eked out a difficult existence. Then, leaving on our right the white shrine, with its inscription over the portal, 'Divae Agathae Servatrici,' which records the gratitude of the inhabitants for the miracle performed by St. Agatha, the virgin martyr of Catania, in preserving the town from destruction, we stumbled along a horrible track of black stones on the lava stream of 1886. Up that the mules laboured for two or three hours, passing another recent stream (of 1892) to yet another expanse of sand. But this was no longer a desert. The result of a very ancient eruption, the *débris* of the mountain had become soil of a rich brown colour; and innumerable cherry and apple trees, with chestnut groves, flourished thereon exceedingly. Young crops of barley and rye made the ground green below them, and birds sang merrily among the branches. It was a little world of pink blossom and budding leaves among towering cliffs and extinct craters. It was an oasis in the midst of a forbidding desert of black crags and frowning mountains—a place typical of the joy of living, but where death and annihilation were very near at hand. As wrote an enthusiastic traveller [2] many years ago:

> No language can do justice to the fertility, scenery, and luxuriant verdure of this tract, whose bosom, heated by subterranean fires, and situated in the most favourable climate upon earth, teems with every flower and tree that can delight the eye and every fruit that can gratify the palate; fields covered with golden grain or the purple vine, villages and convents embosomed in thick groves of chestnuts or oriental planes, mossy fountains and transparent streams, exhausted craters covered with a verdant canopy of foliage, invite the traveller to these enchanted scenes.

The smell of sulphur and gases was carried on the wind; and soon we heard the rumble and rattle of stones and rocks falling. We came suddenly upon the head of the lava stream which had flowed from the crater some ten miles away and 4000 feet above. During a few preceding days of diminished volcanic activity the molten stone had become more solid and its movements more sluggish. It was consequently grey on the surface. But as the sides were opened by the almost incessant explosions within, the red-hot interior was visible. Large rocks were shattered by the heat below and fell down the slopes in fiery fragments. From a spot immediately in front of the advancing mass we looked into the red fissures, and we warmed ourselves in the glow which came from them.

Our course was by the side of the stream of lava, the progress of which became more rapid as we mounted. Lava destroys by

[2] Hughes.

direct downward course and, more, by lateral expansion. The latter is caused by the molten stone which, arrested higher up, has cooled lower down. This causes it to rise in height and to form steep slopes on which fiery rocks and scoriæ roll from top to bottom, burning and burying trees and crops, and whatever they find below. Minor streams also detach themselves on ground favourable, and frequently unite again, filling up the intervening spaces. This occurred before our eyes. The usual road had been between the big flow of lava and the advancing head of a smaller current. Had we kept to the path to venture through the apparently safe opening, we should have been entrapped; and nothing could have saved us from destruction, because if the two courses had joined, which occurred very shortly, no foot could have trodden the surface in the effort to escape from the advancing fire.

Late in the afternoon we reached the Casa Cantoniera, a hut of two rooms and a stable, built by the Italian Alpine Club at an elevation of 7500 feet above sea-level. Here we dismounted to leave our mules and walk towards the crater, which was distant some 400 yards. This new crater is now a conical hill with a depressed summit. The side towards us was split almost to the base. Through that we looked, to see a devil's punch-bowl of molten stone, a turmoil of flame and masses of lurid vapour, with a river of fire running from it. As the wind blew the vapour towards us, it was difficult to approach as nearly as we wished. We reached a spot within 200 yards of the mouth. There the guide refused to accompany us further, pointing around to rocks and stones ejected that morning. That spectacle by day was sufficiently imposing, but as nothing to that which we were to see later. We returned to the Casa Cantoniera, and, seated on the rocks in full view of the crater, we waited for the night to come. A scanty meal in the hut followed. On going out of the building we found the scene had changed as if by magic. The day throughout had been a perfect spring day, without a cloud in the sky. The sunset, therefore, was a pervading glory of crimson, gold and orange in the west, with fainter tints of similar colouring above. The dense masses of vapour which poured from the crater were now of a lurid grey; but when risen to the brink the colours of sunset were reflected, and they took a brilliant cherry hue. These rolled away on the wind in fantastic curves and shapes. When the brighter tints had faded, the sky became of a brilliant translucent blue faintly tinged with olive green, forming a background of marvellous contrast with the lurid vapour, such as no pen could adequately describe nor brush depict.

Then wonder succeeded wonder.

When the dusk had come—and it came rapidly—the west, the dome above us, and the mists eastward were of flame colour. The

principal crater above us was the centre of interest. The incessant uproar which came from it was like the discharge of smaller guns. A deeper rumbling as of big cannon came from the other craters which were occasionally seen on the higher ridge.

We climbed to the spot where we had been in the afternoon, although the sulphurous fumes and gases were almost unbearable. We looked upon an immense fountain of flame darting flashing tongues amid red smoke, and casting volcanic bombs to a great height, to fall either into the crater again or to the earth about us. That world of living flame within the cone was of dazzling brilliance, and as bright was also the river of red-hot lava which issued from the base of the rent. This cataract of viscous incandescent stone flowed at an angle of thirty degrees and at the rate of ten to fifteen miles an hour. It was about forty yards wide, and was confined by a cliff of lava on either side. We stood on the edge of the cliff fifteen feet above, and within ten yards of the edge of the stream. But for the keen wind the heat and gases would have suffocated us. Again, it would be difficult to convey the impression made on us by that lurid, silent, rapid current of red-hot molten stuff. Its smooth movement, its awful glare, its scorching heat, its irresistible force, its inexhaustible quantity (it had been flowing thus for thirteen days) were reflections rapidly made. The scene, however, baffles all description.

Further down the valley, flooded by the molten stone, this river of fire assumed another aspect. Some of the rocks carried on its surface had lost their glow, and their surface had darkened. Seen from afar, this caused the stream to appear as an immense lurid snake, spotted on its back, whose head was lost in the distance and its tail not yet emerged from its lair. We could see it for many miles. At places the breadth was greater, and far away much of the incandescence was lost. But it was all of fire; and we knew that, if its skin was partially blackened by exposure to the air, there was the living furnace below. In fact, the scene was an orgie of flame and consuming heat around, above and below—one given over absolutely to the god of fire, who therein reigned supremely. It was awe-inspiring, terrifying, horrible, in which was felt the utter nothingness of man, he being powerless before its consuming forces: powerless to withstand, powerless even to comprehend.

As we turned away from that semblance of hell, we followed the river of flame to see many variations of destruction. At one spot was perhaps as strange a sight as any we had witnessed. On passing in the morning we had noticed a small conical hill—an extinct crater—at whose base the lava flowed. Now the stream had been dammed and had piled itself behind, to pour in cascades of fire from the summit to the base—and not in one, but in three

separate falls, which formed two arches of perfect but different shapes standing in a sea of flame. Thence the sinuous serpent glided rapidly far away over the valley, where, cooling somewhat, the surface resembled an immensely long town with its streets and houses brilliantly illuminated. Red-hot masses of rock continually rolled down the slopes, setting fire to vegetation, and the current of molten stone silently yet relentlessly sent out small branches to surround fruit and chestnut trees, which, quivering and crackling for a moment, burst into flame, to topple over with a crash.

Long after leaving the lava stream behind, the pathway was illumined by the brilliant brightness of the new crater and the triple cascade of fire. So, though for the last hours of the ride our path was over that same execrable stony track of midday, our mules made fair progress, and we reached Nicolosi without mishap shortly before midnight.

The eruption was of comparatively short duration, as it has now ceased. It has not been a serious outburst. No lives have been lost. The torrents of boiling water and of fœtid mud, the dense clouds of ashes saturated with poisonous acids, have not played a customary part in the destruction. It is true that many square miles of vineyard and orchard have been lost by the invasion of the lava. But no towns nor villages have been destroyed, and but a few houses have been sacrificed to its fury.

When compared with the great eruptions of other years this of 1910 does not rank highly. Some of the former may be recalled. Though the earliest are older than the glacial period in central and northern Europe, the first to be recorded happened probably in the seventh century B.C. This was followed by another in the time of Pythagoras; and by that in 476 B.C., mentioned by Æschylos and Thucydides, and referred to by Pindar in his Pythian Ode, when he wrote of—

> snowy Etna, the pillar of Heaven, the nurse of sharp eternal snow, whereout pure springs of unapproachable fire are vomited from the inmost depths; in the daytime the lava streams pour forth a lurid rush of smoke, but in the darkness a red rolling flame sweepeth rocks with uproar to the wide, deep sea.

In 396 B.C. a torrent of lava ran down the eastern side a distance of twenty-four miles to the sea, which it entered with a breadth of two miles, forcing Hamilcar the Carthaginian, on his way to Syracuse from Messina, to march his troops round by the back of the mountain. In 126 B.C. Etna poured forth streams of lava, and 'the sea by Lipara boiled furiously, several ships being burnt by subterranean fires, and a quantity of dead fish were cast upon the shore, which being devoured by the inhabitants caused a fatal epidemic.' Four years after Catania was grievously menaced,

and would have been entirely destroyed had not the lava, when almost within the city walls, turned at right angles and flowed into the sea. Two eruptions during the civil war between Julius Cæsar and Pompey were believed to portend the death of the latter; and six years later, when Octavianus and Sextus Pompeius were competing for power, the mountain burst forth with such terrible fury that the eastern slope was devastated and rendered uninhabitable.

The Emperor Caligula was frightened from Messina by an outbreak; and another eruption occurred in the second year after the capture of Jerusalem by Titus. In the reign of the Emperor Decius (A.D. 254), Etna broke out again with loud bellowings, vomiting a torrent of lava which menaced Catania once more.

It was on this occasion that the efficacy of St. Agatha's veil—a feature in subsequent eruptions—was first tested. The terrified citizens rushed to the tomb of the Saint, who had been martyred but the year before, and seizing the veil which covered it took it to the burning torrent, whose course was arrested on the instant.

Charlemagne seems to have been vastly alarmed by an eruption in 812.

One of the most disastrous convulsions in history occurred during the reign of William the Good, in 1189.

On the vigil of the feast of St. Agatha, the cathedral of Catania being crowded with people, on a sudden there occurred a most violent earthquake which shook all Sicily to its centre. Catania in an instant was one heap of ruins; not a house was left standing, and no less than fifteen thousand people were buried beneath the ruins. Many towns were thrown to the ground. At Messina, the sea, after retiring a long way from the shore, rushed back with violence upon the city. The cone of Etna was shaken down. New springs gushed out in many places, and old ones disappeared.

Yet another is recorded in 1329, when with a crash like thunder the lava burst forth, while red-hot rocks were hurled into the sea. New craters opened, vomiting lava and other burning matter. The cone of the mountain was overshadowed by immense columns of black smoke, illumined from time to time by vivid coruscations; showers of ashes and sand obscured the air and covered the whole surface of the country, so that the cattle and birds perished for want of food, and these ashes and sand were carried to Malta, a distance of 130 miles.

Reference to the long history of Etna's eruptions, of which there is a record of over eighty, may be closed by the following extract from the account of that terrible one in 1669, as related by Sir Charles Lyell:

It began by the obscuration of the day like an eclipse of the sun, followed by a furious whirlwind and earthquakes. The people of Nicolosi could not keep their legs, and everything around them seemed to be heaving

and rolling like ships in a rough sea. A fissure twelve miles long opened in the mountain side. Then six other mouths opened in a direct line with the fissure, vomiting columns of smoke and sand to the height of 1200 feet, accompanied by subterranean roars and terrible thunders which could be heard at a distance of forty miles, and such convulsions of the earth that Catania, twelve miles off, was tottering to its fall. At the close of the day another and still larger mouth opened a mile below the others, which to the same phenomena added the ejection of red-hot stones to an enormous height, and of sand and ashes in prodigious quantities, which covered the country to a distance of sixty miles. From this mouth gushed a stream of lava which soon spread out to the width of two miles, and in its descent encountered the wooded cone of Monpilieri, which it encircled with flames; then, turning westward, it next day reached Belpasso, a town of 8000 inhabitants, which in a short time was entirely submerged in a sea of fire. That same evening seven fresh mouths opened round the large one, vomiting smoke and red-hot stones with terrific roars, and in three days they united with the original mouth to form one vast crater, a horrible chasm some 2500 feet in circuit. The torrent, advancing with a front of two miles, had overwhelmed a good portion of the town of Mascalucia. The same day the great mouth cast up ashes, sand, and scoriæ in such quantities as to form an enormous double conical mound, now known as the Monti Rossi, and to cover the houses in the neighbourhood to a depth of 6 feet. Fresh violent earthquakes shook down the great cone into the crater so as to lower considerably the height of the mountain. The lava had separated into three separate streams. One destroyed the village of San Pietro; another that of Camporotondo; the third, which ultimately attained the width of four miles, devastated the land of Mascalucia, destroyed San Giovanni di Galermo, and proceeded towards the town of Misterbianco, which it encircled in its fiery arms and utterly destroyed. After overwhelming fourteen towns and villages, it turned towards Catania, and reaching Albanelli, hardly two miles from the city, it lifted up and transported to a considerable distance an argillaceous hill covered with cornfields, then an entire vineyard, which floated for some time on its burning bosom. At length it reached the walls of the city. Meeting this obstacle the lava flood accumulated till it rose to the top of the rampart, which was 60 feet in height, and then tumbled over in a cascade of fire, overwhelming part of the city with the ruins of the ancient Naumachia and Circus. The wall was not here overthrown; in another part, however, the lava entered the city through a breach, and threatened the city with destruction. It reached the sea, which it entered in a stream two miles wide, till it formed a promontory more than half a mile in advance of the original shore. Then began a contest between the water and the fire. The lava, cooled at its base by contact with water, presented a perpendicular wall of 40 feet high. As the fiery torrent, rolling onward in a viscous mass, reached the adverse element, the water began to boil furiously, while clouds of steam rose with a horrible whistling sound to obscure the sun, and then fell again in a salt shower.

It is not a matter for wonder, therefore, if with a history so direful, those who live on the mountain's slopes are in great dread when it is in an angry mood. To the terror of the seen and the known is added the fear of the unknown.

Etna has been the parent of myth and legend from the earliest days of mankind. Perhaps no mountain in the world has provoked the wonder, the admiration, the dread, the superstitious

awe that Etna has inspired. Its majestic height of nearly eleven thousand feet, its base washed by the blue waves of the Ionian Sea, its summit crowned by a diadem of snow, its vast slopes covered with tropical vegetation and with spreading orchards and forests, to end with the forbidding black desert of rock and scoriæ—

> that dreary plain, forlorn and wild,
> The seat of desolation, void of light,
> Save what the glimmering of these livid flames
> Casts pale and dreadful—

all these appeal strongly to the imagination, to a sense of the wonderful, to the lover of beauty. Etna, indeed, lives more than any other mountain. Fondly regarded by those finding an easy existence on its slopes, ever beloved of the poet and the painter, the mountain presents a being full of love and activity. With the untiring and inexhaustible fertility of the soil whereon a dormant state of Nature is unknown, coupled with its secret and mysterious inner life, Etna has a subtle existence and attraction that obtain, perhaps, in no other region of the earth. Hated, too, and dreaded, Etna is not only a fond 'mother,' but a much-feared tyrant, whose moods are variable and whose temper is unreliable. Etna has been known to be quiescent for long periods. The historian Filoteo records his descent into the crater in 1583 after eighty years of tranquillity, when he found it 'shaped like a funnel, and at the bottom a hole hardly as large as a man's head, which emitted a sulphurous vapour, very damp'; though when we visited the crater three hundred years later, we found it to be a huge abyss about four miles in circumference, very deep, and in great activity.

The terror of the inhabitants of the mountain which we have witnessed is no new thing. It dates from times much more remote than to-day. If the moving sense now has been that of fear for the safety of the individual and his property, it has its origin in the superstitious dread of other days, when Etna was the mysterious realm of Aidoneus, the involuntary home of Persephone, the workshop of Vulcan and the Cyclops, the prison of that Enkelados, the Typhon, 'whose groans are the roars of the volcano, and his efforts to free himself the earthquakes which make the earth tremble.' Local legend and tradition, which formerly were religious beliefs, still have their power in the complex nature of the dwellers on Etna, and still enter into the atmosphere of their lives. They account largely for the innumerable myths and superstitions met with, now in one garb and now in another, by a student of the manners and customs of a very interesting people.

Despite modern tendency to unbelief or agnosticism, ancient

ideas and creeds are reverted to. Dormant superstitions, whether of mediæval or earlier origin, start into life and vigour in times of panic such as those which we have witnessed. Power of the priesthood is resumed. Propitiation to ancient gods finds its counterpart in the votive offerings to the saints. Humility and contrition take the place of indifference and scepticism, as in early days.

This explains partly why the churches have been crowded at all hours by men, women and children; why fervent discourses from pulpits were eagerly listened to; why long processions of many people, headed by priests in their robes carrying sacred relics amid the smoke of many tapers, wound their way up the stony slopes of the mountain to oppose the advance of the fiery lava.

We saw people in tearful supplication, in agonies of fear, in stoical indifference (in the Sicilian character is found sometimes a philosophical stoicism contrasting favourably with the usual abandonment to transports of grief or fear, for which the admixture of Eastern blood in Sicilian veins may possibly account); people, also, in contrite submission to the inevitable, in protest and solemn objurgation against a pitiless fate. Many watched the slow but certain destruction of their homes by the advancing lava. In some places the ruin was awaited by an entire family amid the wailing of the women. In others, men, assisted by their neighbours, removed their possessions, doors, windows, and even tiles of the houses in hot haste. Here the stream rose behind a staunch wall, to surmount it and pour its cascade upon the roof, which burst into flame. There the current silently surrounded a house to engulph it, absorbing the tottering walls in its burning embrace. Men and women were seen carrying aged relatives, mattresses, and the scanty possessions which go to compose the furniture of a Sicilian home. Those were scenes to make the heart ache.

Yes, of a truth, not less terrible in its destruction than magnificent as a spectacle was this eruption of mighty Etna—that Mountain of Mountains, called 'famoso,' 'immenso,' 'terribile,' that 'Mother' of smiling lands, that 'Nurse of sharp eternal snow,' that home of ever-lasting fire, which dominates the lives of Sicilians like a god, and as a god dispenses both favours and vengeance with a lavish hand.

ALEXANDER NELSON HOOD.

'TOWARDS EDUCATIONAL PEACE'

THE proposals put forward by the Educational Settlement Committee have the weight which belongs to conclusions arrived at after long deliberation by a very representative body. It has been objected, indeed, that the Committee contained no Roman Catholic and no one who could defend the views which have taken shape in the demand for religious equality as the indispensable condition of educational peace. I do not think that either of these objections has much force. The positions both of the Roman Catholics and of the Religious Equality Anglicans are well known, and they are not likely to change. To have stated them over again in the Educational Settlement Committee would have been only a waste of time. What this particular Committee had to ascertain was the possibility of devising a compromise which should either remove the objections which have been urged in these two quarters against preceding Education Bills, or, failing this, be so plainly reasonable and necessary as to justify Parliament in acting on the principle that the majority must prevail. As regards the first of these results, the Committee have not even essayed to compass it. But as regards the second, they are to all appearance hopeful. Their plan, they plead, has been formulated by a large body of men and women representing many different forms of belief and of administration and other educational experience. No similar Committee 'has ever devoted itself for a long period to a close investigation of the principles and details involved in this difficult question.' Presumably, therefore, they expect that their proposals will meet with a kind and amount of favour which will commend them to all sensible Englishmen.

From this point of view many of the Committee's recommendations may be passed over without comment. Our system of elementary education is open, indeed, to criticism as regards both what it does and what it leaves undone. But for the purpose of political controversy the religious difficulty is the only one that has hitherto proved insurmountable. Upon the duration of a child's stay at school and the nature and amount of what he

should be taught while he is at school there may be wide differences of opinion, but they are not differences so serious as to prevent the acceptance of whatever solution seems best to the Government of the day. It is only on the religious question that three Bills in succession have been introduced and abandoned by a Ministry commanding an enormous Parliamentary majority. It is to this part, therefore, of the work of the Settlement Committee that I propose to confine myself.

No exception need be taken to the principle, which the Committee regard as fundamental, 'that an elementary school under public management should be accessible to every child.' Ideally, managers and parents should be of the same religion. Whether, indeed, any appreciable number of children are compelled to attend denominational schools against the wishes of their parents, I have great doubts. The fact that Nonconformist parents often send their children to Anglican, and even to Roman Catholic, schools when there is a Council school within reach seems to suggest that the choice of a school is commonly determined by considerations with which religion has very little to do. In theory, however, the provision that no parent should be forced by circumstances to send his child to a school managed by a denomination to which he does not himself belong is perfectly reasonable. The parents' alarms may be quite unfounded, but if they exist—and the law has no right to assume that they do not—it is a piece of oppression to disregard them. The acceptance of this principle necessarily involves the universal provision either of schools belonging to every denomination represented in a school district, or of schools under public management. 'In all urban areas,' say the Committee, 'and in many which are not urban, the population is large enough to permit alternative types of school,' and here the religious difficulty settles itself. But in single-school districts that difficulty may at any moment become acute. One way out of it would be to build a Council school by the side of every denominational school. But in many cases this would mean the provision of two schools to do work for which one is amply sufficient—a waste of public money which no Parliament is likely to sanction. And yet these denominational schools have very real claims upon the reasonable educational reformer. What these claims are is very well set out in the Committee's Report. 'Varied and sacred responsibilities' are in many cases attached to them. 'The specifically educational obligations under which the school buildings are held' cannot be 'easily separated from intertwined obligations of a pastoral and spiritual kind. The school buildings are often an indispensable part of the parochial equipment. Their employment for day-school purposes is often but one element in a varied use.' How

are these considerations to be reconciled with the universal provision of Council schools in the areas in question? The answer of the Committee is that the denominational schools must, if it can be managed, be handed over on fair terms to the local authorities, and that, if this cannot be managed, the trustees must be allowed to keep the school buildings in their own hands. If they elect to do this, the school will, of course, cease to receive any grants from public money, but the school house will not have changed owners, and it may be turned to good account in other educational ways. One of these ways, I may add, is greatly facilitated by the excellent suggestion that 'the school attendance by-laws of every local education authority shall be so framed as to allow a parent to withdraw his child from part or from the whole of the religious instruction given in any public elementary school in order to receive some other form of religious or moral instruction outside the school buildings during the time assigned to religious instruction in the school time-table.'

The retention of the school buildings by the present owners is not, however, the main feature in this plan for dealing with single-school areas. It is only an alternative provision of which, in the opinion of the Committee, few trustees of village schools would care to avail themselves. As a rule, the denominational school in a single-school area would be transferred to the local education authority. Compulsion, however, would have no place in this process. 'The terms would be left (subject to certain conditions) to negotiations between the trustees or owners of the school and the education authority of the district.' The contracting powers would have two years allowed them in which to come to an agreement, and the Committee feel little doubt 'that, in the great majority of cases, the trustees of village schools would be disposed to negotiate with the local authority for the transfer of the buildings on lease or otherwise, and to accept reasonable terms of settlement.' By 'reasonable' the Committee understand terms under which the local authority would be compelled to provide, in all transferred schools, 'accommodation for the giving of denominational religious instruction of a type in accordance with the trust deed of the school (or, in the absence of a trust deed, in accordance with the previous practice of the school) for any child whose parents desire such instruction on its behalf.' This instruction would be given in school hours, but the cost of it 'would have to be defrayed from voluntary sources.'

The more important part of the Committee's Report, though not perhaps the one which will excite most controversy, is that dealing with the relations between Council and denominational schools in the country generally. The Committee begin with a statement from which there will be very few dissentients—that

religion must be made 'an integral part of school life.' Unfortunately agreement upon this as a principle carries us no way at all towards agreement as to the means of applying it. Secularists, as the term is understood in England, may be just as anxious as their neighbours to see religion made an integral part of school life. They only part company when it comes to settling by whom the teaching which is thus to influence school life shall be given. The plan of the Committee makes one provision for Council schools and another for denominational schools. As regards the former, the local education authorities are given the choice between themselves providing the religious instruction and allowing voluntary organisations to give it in their stead. In the latter case the instruction would also be given within school hours, but it would be paid for from voluntary sources. This alternative provision sounds more liberal than it really is, since the Committee admit that 'almost without exception' the local education authorities would themselves provide the religious instruction for their own schools. It is unnecessary, therefore, to spend time in considering an arrangement which can only come into being when the local authorities omit doing what we are told on the next page they will almost invariably do. What really concerns us is the character and position of the religious instruction provided by the local authorities in Council schools. It will consist, we learn, of 'instruction in the Bible and in the principles of the Christian religion,' and it will also include 'instruction in personal and civic duty'—two items which are not found, seemingly, either in the Bible or in the Christian religion. The local authorities will be assisted in this part of their work by Religious Instruction Committees composed, in part at all events, of 'persons of experience in the education of the young' and representatives of 'different religious bodies in the area concerned.' To these committees would naturally fall the duty of considering and occasionally revising the syllabus of the religious teaching provided in the schools, and of arranging for the voluntary training of teachers for the work of giving religious instruction and organising special courses of study.

A second means of making religion an integral part of school life is the retention, where possible, of existing denominational schools, and in certain cases the building of new ones. The Committee recognise the importance of encouraging 'diversity of educational method.' And then follows a sentence to which, if it stood alone, I should have some difficulty in attaching a meaning. 'English national sentiment has for centuries shown a strong preference for allowing great freedom in the utterance of personal conviction, both in the civic business of adult life and in the conduct of the education which prepares for it.' Read in conjunction

with what I know of the education controversy from other sources, I take this to mean that Englishmen are sharply divided upon religious questions, and that any Education Bill which ignores this fact is certain to come to grief. Having this fact in mind, though they seem unwilling to put it into words, the Committee propose that subject to three conditions denominational schools shall be kept alive, wherever a choice of schools is possible without detriment to the efficiency of general education. These conditions are (1) that the schools in question shall be efficient, (2) that they shall submit themselves to inspection, (3) that accommodation in a Council school shall be within reach of every child in the district served by a denominational school. In order to give effect to this arrangement, the Committee recommend that in the event of their proposals being adopted by Parliament each local authority shall be required to 'frame a scheme showing which, if any, of the existing denominational schools in its area it proposes to continue to recognise as grant-earning alternative schools.' If an authority is of opinion that one or more schools belonging to the same denomination should cease to receive grants, it will open negotiations with an association approved by the Board of Education as representing the group of schools concerned. When the negotiations are completed the local authority will publish its scheme for the recognition of alternative schools and submit it to the Board of Education. If no difficulty has arisen in the course of the negotiation the approval of the Board will follow as a matter of course. Otherwise representations from residents in the district will be considered, and if necessary a local inquiry will be ordered. In the light of the information thus gained the Board will make a final order.

Upon the vexed question of the part the teachers in Council schools are to take in giving denominational teaching, the Committee make three recommendations. In transferred schools the freedom of the teachers (head and assistant) now on the staff to give denominational instruction will be left undisturbed. But this permission will not be extended to any head teacher hereafter appointed. He is 'in a position of special administrative responsibility, and it is necessary, in order to avoid even the suspicion of unfairness, that his neutrality in regard to denominational difference should be secured.' Teachers other than head teachers will remain free to give denominational instruction unless the local authority should be of opinion that this permission will provoke religious controversy. In alternative schools 'the Committee's plan leaves it to the managers to assure themselves that the teacher is in sympathy with the principle upon which the work of the school is done, and allows the teacher freedom to take service in such schools according to his conviction and preference.' As

regards the maintenance of alternative schools, the plan follows 'the general lines laid down by the Education Act of 1902,' and 'adopts without any haggling or pretence of concealment the principle that a public elementary school, if rightly recognised at all, ought to receive out of public funds central and local the subsidy which it requires for its efficient maintenance.'

To this part of the Committee's plans are added two supplementary provisions. One is meant for cases in which the existing denominational schools have ceased to be numerous enough to meet the wishes of the parents in the district. When this has happened the local authority will be required to take into consideration any memorial signed by the parents of not less than sixty children of school age in the school district concerned, and if it is found that the parents of not less than (say) a hundred and fifty children belonging to one denomination wish them to attend an alternative school, and the necessary buildings can be provided out of funds derived from voluntary sources, then the local authority will be required to recognise and maintain such a school. If they refuse to do this an appeal will lie to the Board of Education, which, if satisfied that a new alternative school is required, will make the necessary order, and in the event of its being disobeyed will have power to pay the whole cost of maintaining the school and to deduct the money from the aggregate of grants due to the local authority in question for the maintenance of elementary schools. The second supplementary provision is designed to meet cases in which, owing to the falling off in the number of children attending an alternative school, or 'for other reasons impairing its educational efficiency,' its maintenance has, in the opinion of the local authority, become unnecessary. In these circumstances the grant may be withdrawn, with a twelve months' notice to the managers; but the parents of children of school age in the district would have an appeal upon the facts to the Board of Education.

In the plan thus stated three classes of school are contemplated—Council schools, transferred denominational schools, and alternative schools. From the point of view of religion, each of these classes will be of a different type. In the Council schools only one kind of religious teaching will be permitted and paid for. In the transferred schools more than one kind will be permitted, but only one will be paid for. In the alternative schools all kinds —if they are sufficiently represented among the parents in the district—will be permitted, and all will be paid for.

I have described the plan of the Settlement Committee at, perhaps, unnecessary length, because its main features may easily be missed in the multitude of details, and an inadequate estimate be formed of the labour and thought which its preparation has cost its authors. Whether we agree with it or not, whether we think

it likely to succeed or predestined to failure, it is a plan which deserves careful examination as the most thorough-going, and possibly the last, of those attempts at educational compromise, of which we have seen so many. No future Committee is likely to represent a greater variety of theological and educational opinion, or to spend more time and thought on the discovery of a middle platform on which we may all agree to work. If it breaks down, as I believe it will, it will show that no amount of agreement upon matters of practice can hope to disguise a radical divergence in principle.

The first thing that strikes one in considering this plan is that there is a curiously archaic air about it. Almost every word in the pamphlet might have been written when the application of the principle of equality to the religious difficulty in education was still undreamed of. The plan takes into account a variety of obstacles that will have to be surmounted, but it takes no notice of the fact that a large number both of churchmen and of non-churchmen are opposed to the idea of setting up a particular variety of religious teaching in elementary schools as that specially favoured by the State. If anyone had suggested giving this prerogative to the Church of England he would have been an object of general contempt. And yet, both in history and law, the Church of England has claims to be thus singled out which it would be hard to make out in behalf of any other religious body. She is still the Established Church of the country, she still probably commands more adherents than any of her rivals. But the Committee, while holding that a single form of religious teaching must be given an exceptional place in every State school, singles out for this exclusive recognition a form of religion which dates no further back than 1870, and is, in fact, our old friend 'simple Bible teaching' decked out, by way of additional ornament, with 'the principles of the Christian religion.' It is this that is once more put forward as a religion which all reasonable men may be expected to accept as at least a working substitute for their own creed. This is what I mean by calling the plan of the Committee archaic. It takes no notice of the growing dislike entertained by a large number of churchmen, not for Cowper-Temple teaching itself—it is too elusive and indefinable to excite any strong feeling whether of love or hate—but for the proposal to make it the established and endowed religion for elementary schools. Their dislike of the incidental demand which this proposal makes on their pockets is entirely due to the inequality of its application. Their grievance consists in this, that in Council schools—the kind of school which on the Committee's plan as much as on any other tends to become the norm of elementary schools—this will be the only religious teaching provided at the public cost. They

claim no more right than other people to have a religious teaching which they like paid for by the State. They only claim that they have as much right as other people not to be made to pay for a religious teaching which they dislike. What more, it may be asked, can they wish for than is given them in the alternative schools suggested by the Committee? Just this much more: When undenominationalism gets its schools built and maintained for nothing, Churchmen see no reason why their schools should only be maintained after they themselves have built them. They do not ask to be more favoured than their neighbours; they only seek to have the same measure dealt out to all varieties of opinion —to Churchmen and Nonconformists, to Denominationalists and Undenominationalists. The alternative schools suggested by the Committee do not satisfy this desire. They are maintained, indeed, at the cost of the community just as the Council schools are, but they are not built at the cost of the community as the Council schools are. The equality we ask for can be obtained in more than one way. Denominational teaching may be established and endowed as undenominational teaching is, or undenominational teaching may lose its pride of place and be left to be paid for by those who value it. There may, though I do not know it, be some third course, which offers an easier way out of the difficulty than either of these, and the time of the Settlement Committee would have been well employed in searching for it. Instead of attempting this they simply reject every alternative that has been suggested as 'either educationally unjust to the country,' or 'unjust to large numbers of citizens,' or 'only plausibly and superficially meeting the difficulties of the religious objector.' But the plan that they have adopted is open to every one of these objections. It fosters and increases the irritation which a sense of religious injustice invariably engenders. It is unjust to Denominationalists, whose contention is that from the point of view of the State all forms of religious teaching should be placed on a footing of entire equality. And so far from meeting the difficulties of the conscientious objector 'only plausibly and superficially,' it does not meet them at all. We are thrown back on our old demand, 'Pay all or pay none; give us either concurrent endowment or State neutrality.'

This is the chief fault in the Committee's plan, and it applies to its treatment both of alternative schools and of transferred schools. In the latter, indeed, the injustice is greater than in that of the alternative schools. In the alternative schools, though the cost of the structural repairs and of any new buildings must be borne by the denomination, the religious instruction will be included under maintenance, and paid for, as now, by the education authority. But in the case of transferred schools, even the reli-

gious instruction must be paid for by the denomination. If it is not unjust to charge the whole maintenance of an alternative school upon the public, where is the injustice of charging the whole maintenance of a transferred school on the public? The Committee do not seem to have realised that the issue is one of principle, and so does not admit of compromise. They have treated it as wholly a matter of give-and-take—a compromise in which each party surrenders something and gets something in return. There is abundant room for this process in other parts of the education controversy, but it must begin after the principle has been settled. Once let it be admitted that denominational and undenominational teaching are to be placed on exactly the same footing, and we can all co-operate in considering what that footing had better be. Until this fundamental question has been got out of the way negotiation is useless.

I do not deny that the terms proposed by the Committee are more favourable to denominational schools than some that have been offered in the past. But they still embody the principle of inequality of treatment. The new religion which it is proposed to set up in every Council school enjoys a position which is not shared by any other. It is wholly provided by the civil authorities. It is paid for from first to last out of State money. It is the universal rule of which the several forms of denominational teaching are more or less tolerated exceptions. This is a position which to some Churchmen—I do not pretend to say how many they are—will always be unendurable. No doubt the Committee will meet them with Mr. Birrell's plea that minorities must suffer. I admit it. It is the badge of all our tribe. But if history teaches anything, it is that where religion is concerned the determination of majorities to impose their will upon minorities seldom answers. The majority gets its way for the moment, and the moment may be a long one; but the minority is only biding its time, and of all attitudes that is the least favourable to a peaceful and permanent settlement.

Undenominational teaching, as understood by the Committee, is in some of its features an improvement on the old Cowper-Temple teaching. The Bible and the principles of the Christian religion is a better phrase than the Bible with no mention of the religion contained in it. It has often been instanced as the best result of the Cowper-Temple system that every teacher is left to bring out of the Bible whatever he finds there. The Committee do not push their conception of liberty to this length. The future teachers in Council schools will seemingly be bound to find Christianity in the Bible or leave the religious instruction alone. Further, the Committee recognise the importance of training teachers to give religious instruction.

'The spiritual power of his religious teaching depends (so far as he [the teacher] himself is concerned) upon . . . his previous preparation for the work.' They propose, therefore, that all local education authorities and all governing bodies of training colleges should be under obligation to give those who are preparing themselves to be teachers opportunities for study and training. This is so obvious a truth that one is tempted to wonder why the Committee thought it necessary to state it. But as they have stated it, we naturally look to see it followed by a notice that in the opinion of the Committee every local authority which undertakes to provide religious instruction should satisfy itself either by certificate or by examination that the teachers appointed to give it are qualified for the work. Nothing of the sort, however, is to be found in the plan, and as there is an express stipulation that it shall be the right and duty of the local authorities to 'assure themselves of the character of those whom they appoint as teachers,' it seems to follow that they will not be entitled to assure themselves of anything else. To insist that a teacher should be asked what he knows about arithmetic or geography before he is entrusted with the teaching of these subjects is not usually held to be a violation of his freedom. It is only where religion is concerned that we are expected to believe that 'reality and sincerity' will be best promoted by asking no impertinent questions. The Committee are wonderfully anxious to maintain the freedom of the teacher to teach what religion he likes and to teach it with or without any previous preparation. In comparison with this great principle the interests of the children who are to be taught occupy but a subordinate place in the scheme they have framed.

Omissions of this kind, however, are of minor importance by the side of the deliberate exclusion of all reference to the demand for equality of treatment which has of late assumed a new importance. The Committee recognise that 'the controversy about national education has a grave aspect and cannot be composed by any superficial compromise.' But this solemn statement is only the preface to a compromise as superficial as any of those that have gone before it. Their plan is one of great ingenuity, but it does not touch the obstacle on which all previous schemes have made shipwreck. That obstacle is the unwillingness of so many educational reformers to grant equal treatment to all forms of religious teaching. So long as this exists—and the proposals of the Committee do nothing to remove it—no real advance will have been made towards an educational settlement.

I must say one word before closing of the notice which the Committee accord to the passive resister. He is not passed over altogether, as the claimants for religious equality are. He may even be said to receive 'honourable mention.' The Committee

recognise 'an intensity of conviction whch has led many citizens to refuse payment of part of their school rate,' and, they might have added, to accept imprisonment as a consequence of their refusal. But this recognition carries them no further than the expression of a pious hope that those who now feel this intense conviction will find in the Committee's proposal a warrant for making, 'for the sake of peace, a large concession of individual principle to meet the not less conscientious conviction of large bodies of their fellow citizens.' A conviction which to-day is so intense that it sends a man to prison rather than pay what he holds to be a religious rate, and to-morrow is so weak that it yields to an assurance that large bodies of his fellow citizens have a not less conscientious conviction that he ought to pay it, is a new variety of scruple, and till its existence is demonstrated I shall continue to think that the Settlement Committee have not taken sufficient account of a genuine, if limited, feeling. I own, however, that their neglect of the passive resister is to some extent justified by the indifference with which he has been treated by many of his fellow Nonconformists. Their opinion seems to be that he ought to find sufficient consolation for an occasional term of forced seclusion in the knowledge that a Government is in office which includes the authors of three unsuccessful attempts to relieve him.

D. C. Lathbury.

LEONARDO DA VINCI AND THE SCIENCE OF FLIGHT

In the spring of the year 1334 the Republic of Florence passed a decree for the building of a Campanile 'so magnificent as to surpass in height and excellence of workmanship whatever of that kind had been made by the Greeks and Romans in the time of their utmost greatness.' The result stands four-square to the winds of heaven. How far the intention was fulfilled may be gauged by Ruskin's tribute 'of living Christian art none so perfect as the tower of Giotto.' The breadth and suavity of ordered purpose which characterise Giotto's work in art are nowhere more apparent than in the series of bas-reliefs round the base of the tower, which formed an epitome of human progress from the time of the Creation, in mastery over the elements, and in growth to fulness of intellectual and spiritual life.

Designed by Giotto, executed in part by Andrea Pisano, and uniting Giotto's naturalism and humanity with the dignity and repose of the Pisanesque tradition, the reliefs were an important influence in the development of Florentine sculpture.

Giotto is one of the very few artists to whose work Leonardo da Vinci makes specific reference in his writings, and these reliefs must have been observed by him times without number during the period of his apprenticeship in Verrocchio's studio. The figure of Jabal in one, representing pastoral life, seated at the door of his tent with his sheep and watch-dog around him, has just that fidelity and *naïveté* in the interpretation of nature for the possession of which Leonardo characterises Giotto's work in painting. From another of the series Leonardo may have derived his first conception of a mechanism for flight. The relief, which is one of those executed by Andrea Pisano, represents Daedalus in the act of trying his wings, thus symbolising man's conquest of the air. A note by Ruskin may serve to convey an impression of its artistic quality :

> The head superb, founded on Greek models; feathers of wings wrought with extreme care, but with no precision of arrangement or feeling. How far intentional in awkwardness I cannot say; but note the good mechanism of the whole plan, with strong standing-board for the feet.

It may not be entirely fantastic to suppose that the study of this relief is perceptible in the treatment of the angel's wings in the small panel of the Annunciation in the Louvre, which is now accepted on internal evidence as one of Leonardo's earliest works. Certainly the description, 'feathers of wings wrought with extreme care, but with no precision of arrangement or feeling,' would apply equally to the picture. This shows the artist's study of the structure of a bird's wing in the rows of feathers and tufted plumage, the big feathers which end the wings, the lesser ones above them, the tufts of down that nestle beneath the shoulders. Yet the resultant impression is neither of precision nor decoration, as is often the case in the treatment of wings by the earlier Italian and Byzantine artists, but simply one of strength. The wings seem almost to quiver with life and vigour of movement. Their use has been considered in the mind of the artist. In contrast with the somewhat similar version of the same subject in the Uffizi (No. 1288) they are of dimensions sufficient to support the figure of the angel.

But Leonardo's interest in the bas-relief of the Campanile was not primarily artistic. The myth of Daedalus is the earliest expression of man's belief in his ultimate inheritance of the air, and he looked beyond the problem of its plastic representation to the thought itself, from the art of Giotto and Andrea Pisano to that of Daedalus, the maker of wings. Something of the extent of that intellectual activity for which he was celebrated above almost all his contemporaries, and the workings of which time has made more fully manifest, is suggested by the words which conclude his earliest biography, 'his spirit was never at rest, his mind was ever devising new things.' More than of any other character of the Renaissance this is true of him. He was occupied with the study of the exact workings of the forces of nature and of their application to human purposes. When in course of time things old in promise are established and the long-fought battle has been won, it first becomes possible to estimate with some degree of exactitude the *rôle* of each precursor and to discern how far he travelled along the road of the final advance. In the case of Leonardo, considered as the pioneer of the modern science of aviation, the evidence is of a concrete character. It is possible to define very narrowly the character of his researches and the nature of his conclusions. A sentence of Otto Lilienthal's, one of the greater names in the history of the recent advance, who paid for his devotion with his life, expresses succinctly that measure of contempt which the practical inventor is apt to affect for the mere theorist, however much he may be indebted to his researches: 'To conceive of a flying machine is nothing, to construct one is something, but to make trial of it is

everything.' That Leonardo put his knowledge of theory to the proof is to be inferred from the only reference to these researches which is found in contemporary record. It occurs in the *De Subtilitate* of that somewhat empirical physician and philosopher, Jerome Cardan, who visited England and cast a horoscope for Edward the Sixth, in which he foretold long life for that monarch. As a chronicler Cardan is on more stable ground than in the *rôle* of astrologer, and after including the invention of flight in a list of 'the excellent arts which are hidden,' he continues: 'It has turned out badly for the two who have recently made a trial of it; Leonardo da Vinci, of whom I have spoken, has attempted to fly, but he was not successful; he was a great painter.' The laconic antithesis suggests—it almost summarises—the attitude of contemporary criticism with regard to Leonardo's scientific and mechanical pursuits. The standpoint is the same as that of Vasari, who regarded them as deviations from those purposes which Leonardo alone could accomplish. The criticism has been justified by the march of events. One by one the mechanical and scientific problems to which a great part of Leonardo's creative power was devoted have been solved. He stands revealed as 'the forerunner.' But the debt of later investigators has been primarily as was that of Leonardo to nature herself. His researches were not links in a chain. He foretold what others afterwards accomplished, and it happened not infrequently that he foretold what proved to be the right method of performance. But in art what Leonardo left tentative and fragmentary must ever be incomplete. Others may partake of his influence, but there is no renewal of the spirit; none can add to the substance or use the crucible of his thought. Therefore his achievement in art is something more intimate and more unique, and as such it outweighs the sum of his researches and discoveries although these traversed the whole domain of nature. In the one he is a creator, in the other a student, and the records of his work as such are to be found only in the thousands of pages of his manuscripts. The researches which these contain in the science of flight are of themselves sufficient to reveal the unflagging zeal with which he devoted himself to the study of primary causes. The subject has given its name to one of the two of his treatises which exist in a more or less complete form (*Il Codice Sul Volo degli Uccelli*); but this would seem to be only an early draft of the results of his observations. It is also treated of in the *Codice Atlantico*, and in seven of the twelve of Leonardo's manuscripts which are now in Paris in the Library of the Institut de France. Three of these manuscripts, B, E, and K, together with some of the pages in the *Codice Atlantico*, contain his ultimate conclusions as to the nature of the flight of winged creatures and the application of these

principles to a mechanism for human flight. The subject is treated of on a hundred and ninety-four pages of the manuscripts, apart from those which treat of the laws of motion and force and the underlying problems of animal mechanics. Some of these references consist of a few lines, or a diagram with a brief note in explanation, but many consist of pages or half pages of closely written matter, the contents of which are far more voluminous than the writings of any other student of the subject down to Leonardo's time. The material falls naturally into two groups, the first being a series of investigations of the laws which govern the power of flight as manifested in nature by birds and other winged creatures, the second consisting of deductions from these principles in the construction of a mechanism which should be capable of sustaining and being worked by man. The inter-dependence of the two parts of the inquiry is stated with great succinctness in a passage in the *Codice Atlantico* (161 r.a.):

> A bird is an instrument working according to mathematical law, which instrument it is within the capacity of man to reproduce with all its movements, but not with a corresponding degree of strength, though it is deficient only in the power of maintaining equilibrium. We may therefore say that such an instrument constructed by man is lacking in nothing except the life of the bird, and this life must needs be supplied from that of man.
>
> The life which resides in the bird's members will without doubt better conform to their needs than will that of man which is separated from them, and especially in the almost imperceptible movements which preserve equilibrium. But since we see that the bird is equipped for many obvious varieties of movements, we are able from this experience to deduce that the most rudimentary of these movements will be capable of being comprehended by man's understanding; and that he will to a great extent be able to provide against the destruction of that instrument of which he has himself become the living principle and the propeller.

In the analogy thus drawn from nature to the problem before him Leonardo has anticipated the attitude of modern research. With his words may be paralleled those of Captain Ferber: '*Il nous faut apprendre le métier d'oiseau, comme l'enfant apprend à marcher, et même, ce qui paraîtra à beaucoup extraordinaire, comme le jeune oiseau apprend à voler.*'

The famous discovery by the brothers Montgolfier has tended to retard almost as much as to advance the progress of aeronautical discovery, through the resultant difference of opinion as to whether the apparatus necessary for flight should be lighter or heavier than air. With Ferber the solution had been arrived at, and he restates the problem on the same lines as Leonardo.

Flight is a natural phenomenon, and consequently its laws are to be deduced by observation of nature. In acting on this principle Leonardo followed the course marked out by Aristotle in the chapters on the flight of birds in the treatise 'on the method of

progression of animals,' with which treatise it is reasonable to suppose him to have been acquainted. The references to Aristotle in his manuscripts are more numerous than to any other classical writer, and a note in the *Codice Atlantico* allows us to infer that he either possessed or had access to translations in manuscript of works which had not then been printed. It may also be noted that the list of books in the *Codice Atlantico* which are believed to have formed Leonardo's library includes the names of Pliny and Albertus Magnus, both of whom, the one in his *Natural History*, the other in *De Animalibus*, have investigated the causes of birds' flight. But both added little, if anything, to the sum of Aristotle's researches, and Albertus Magnus is in a special sense his follower and is the translator of various of his treatises. In relation to Leonardo the three may be looked upon as a single influence, and this proceeds from ' il maestro di color che sanno.'

By contrast, however, with Aristotle's inquiry, which is limited to considering the rudimentary principles of structure and movement of wings and tail in birds, insects, and fishes, the scope of Leonardo's investigations is almost encyclopædic. As a means to determine the exact conditions of flight, which is the movement of one substance within another, he will consider also such operations of nature as offer parallel principles.

> In order [he says] to give the true science of the movement of birds in the air, it is necessary to give first the science of the winds, which we shall prove by means of the movements of the water; this science is in itself obvious to the senses, it will serve as a ladder to arrive at the knowledge of winged creatures in the air and the wind. (E 54 v.)

And again:

> Of the bird's movement—in order to speak of this subject it is necessary that in the first book you treat of the nature of the resistance of the air; in the second the anatomy of the bird and of its feathers; in the third the action of these feathers in various of its movements; in the fourth the strength of the wings and tail without beating of wings, with the help of the wind to serve as guide in various movements. (F 41 v.)

And again:

> Before writing about winged creatures, make a book about how inanimate things descend through the air without wind, and another about their descent with the wind. (F 53 v.)

Accordingly we find him considering the descent of a board of uniform thickness placed first horizontally and then slanting in the air; and he shows how of bodies of equal gravity that will show itself less heavy which extends in greater breadth, and how the heaviest part of a moving object will serve as a guide of its movement, and how the variation of shape of the front or rear portion will deflect its course.

In treating of the science of the winds he shows how the wind varies in power according to its altitude, as is proved by the fact that birds always fly low when the course of the wind is contrary. The movement of the wind is similar in all respects to that of the water. The rudder behind the ship is imitated from the tail of birds; and swimming upon the water teaches men how birds do upon the air. The hand of the swimmer strikes and rests itself upon the water and causes his body to glide away in an opposite movement; and so the wing of the bird does upon the air, for when two forces strike against each other that which is the more rapid always springs back.

He also defines the resistance of the air, and shows how there is as much pressure exerted by a substance against the air as by the air against the substance; and he shows how the fact of a bird remaining motionless on its wings in the air is due to an equilibrium of forces; and how the air beneath the movable substance which descends in it is condensed, and the air above it is rarefied.

After establishing these principles, with others of movement and weight fundamental to his purpose, he addresses himself to the theme more narrowly. Another introductory passage serves to show the order of the work:

> I have divided the *Treatise on Birds* into four books, of which the first treats of their flight by beating their wings; the second of flight without beating the wings and with the help of the wind; the third of flight in general, such as that of birds, bats, fishes, animals, and insects; the last of the mechanism of this movement. (K 3 r.)

The material which corresponds to these divisions is sufficient to render it comparatively simple to construct the treatise from the manuscripts. Each part is based upon many detailed observations as to the distinctive features of the flight of various birds and other winged creatures. There are notes of this kind about the thrush, the swallow, the lark, the eagle, the kite, the magpie, the dove, and the rook, as well as about butterflies, flies, and bats. That these observations were at first hand is shown conclusively by such a passage as this:

> I have seen the sparrow and the lark fly upwards in a straight line, being in a level position, and this comes about because when the wing is raised with swift motion it remains pierced through (by the air). (*C.A.* 160 r.b.)

or the note, with diagram:

> See to-morrow morning whether the bird which wheels round coming against the wind *n* stays in the line *a b*, keeping the head in *b* or whether it is in the line *c d*. (*C.A.* 220 r.a.)

So 'of the commencement of the flight of birds'—it must be in one of two ways.

The one begins by their lowering themselves with their bodies to the ground, and then producing a leap into the air by extending very rapidly the legs which are folded up; at the end of this leap the wings have finished their expansion, and the birds immediately lower them rapidly towards the ground and rise the second stage, which is slanting like the first; and so continuing repeatedly they rise to whatever height they please.

The second method is when they drop down from a height:

They then merely throw themselves forward, and at the same time open their wings above and in front, and in the course of their leap they drop the wings down and backwards, and thus rowing they continue their slanting descent.

Others throw themselves with their wings closed, and as they descend they open their wings, and when they have opened them they are checked, and then they close them and fall. (G 64 r.)

So also the successive stages of the flight, either with or against the wind, soaring, tacking, flying in loops, curving, gliding, falling, alighting, are all described with a like closeness of observation and precision of detail.

The manuscripts contain many drawings of birds and other winged creatures. These are of the nature of diagrams subsidiary to and explanatory of the text; but the hand of the artist will not be denied, and some are of great beauty. Certain maze-like delineations of the curves of a bird's flight may serve to recall various *intrecciamenti* which he made as studies for the design on the ceiling of the Camera delle Asse in the Castle of the Sforza at Milan, and the design itself perhaps owes something to his studies of birds' movements.

Flight is the movement through the air of a body which conquers the resistance of the air by means of wings, which are worked by the tendons or muscles of the chest and shoulders somewhat after the manner of levers. The line of this movement is regulated according to Leonardo by the position of the centre of gravity, by the position of the tail, and by the angle at which the planes of the different parts of the body stand to each other. He thus defines the nature of straight and curved movement:

All bodies which have length, and which in moving through the air have their lateral extremities equally distant from the line of their centre of gravity, will make straight movements. . . . If the lateral extremities of the bodies which have length are at an unequal distance from the line of their centre of gravity, then the movement of the body will describe a curve in the air, and this curve will have its concave part on the side where the extremity of the body is more remote from the line of the centre of gravity. (E 35 v.)

The same result is also brought about by lowering one of the sides of the tail. The line of movement will then describe a curve, and the curve so formed

will have its concave side towards the side of the tail that is lowered, and the wing on that same side will be slower than the opposite wing in proportion as the bird's movement is more curved. (E 36 r.)

The bird which takes longer strokes with one wing than with the other will proceed by a circular movement. (*C.A.* 220 v.c.)

Or one wing may be held at rest and then the curve will be of the sharpest, because 'the bird beats its wings repeatedly on one side only when it wishes to turn round, while one wing is held stationary.' (K 7 r.) If the movement of the wings is equal above and below the bird's centre of gravity, but the downward beat of the wings is more rapid than the upward beat, the line of the bird's movement will slant upwards; and conversely the slant will be downwards if the wings move more rapidly in rising than in falling.

The exact action of the wing when the bird is in flight without the help of the wind is thus defined:

The bird drops half the wing downwards, and thrusts the other part towards the tip backwards; and the part which is moved down prevents the descent of the bird, and that which goes backwards drives the bird forward. (K 12 v.)

The bird's power to increase the speed of its movement when descending is by pressing itself closer together in the wings and tail, because by the fourth law of gravity 'that heavy substance makes the most rapid descent which takes up a less space of air.' (E 37 v.) Its speed is checked by the opening and lowering of the tail and the spreading out of the wings at the same time to their full extent.

The helms or projections on the shoulders of the wings are formed of very small hard feathers, and are 'provided by resourceful nature' to enable the bird when in rapid descent to turn from one direction to another, without the slackening of its movement which would be caused by the bending of the whole wing.

The tail when lowered equally will cause the bird to descend by a direct slanting movement; if it is more lowered on the right side the direct descent becomes curved, and the bird moves towards the right side with a greater or less curve according to the extent to which the right point of the tail is lowered, and similarly with the left side; if the tail is raised equally a little above the level of the backbone of the bird, the bird will rise up by a direct slanting movement, and if it raises the right point of the tail more than the left, the movement will curve towards the right side, and if the left point of the tail is the more raised it will curve towards the left side.

The structure of the wing, convex on its upper surface and concave on the lower, is adapted to help the bird to sustain itself upon the air, because the air flies more readily from the stroke of

the wing as it rises than as it falls, for then the fact that the air is enclosed within the concavity of the wing produces its condensation more speedily than its flight. The extremities of the wings are of necessity flexible because

when the bird is in position to receive the percussion of the wind slantwise, the extreme part of the lower wing is considerably bent, and makes itself in the form of a foot upon which the weight of the bird is supported somewhat. (E 53 v.)

In thus treating of the structure of the bird's members and the natural law of their movements the scope of Leonardo's investigation is the same as that pursued by Aristotle. But whereas in the one case this forms the limit of the inquiry, in the other the conclusions are modified by the consideration of natural causes, such as the action of the wind and the operation of the laws of gravity.

The atmosphere, either still or in motion, is the substance within which the body in flight has to make its movements, and the instinct of the bird enables it to make use of the movement of the wind to serve its own purposes.

In describing the workings of this instinct Leonardo shows how the wind serves as a wedge below or above the bird, for

birds which rise on the wind in circles hold their wings very high, so that the wind may serve as a wedge to raise them up; similarly in their descent they lower their wings so that less air sustains them, and the wind may act as a wedge above them and drive them down. (K 58 v.)

He describes these circles in which birds rise by the help of the wind as being of two kinds, simple and complex:

The simple comprise those in which, in their advancing movement, they travel above the flight of the wind, and at the end of it turn and face the direction of the wind, receiving its buffeting from beneath, and so finish the reverse movement against the wind.

The complex movement by which birds rise is also circular, and consists of an advancing and reverse movement against the direction of the wind in a course which takes the form of a half-circle, and of an advancing and reverse movement which follows the course of the wind. (*C.A.* 308 r.b.)

These are only notes for a projected treatise, fragmentary as such, and in selection seeming still more so. To multiply quotations would not, however, of necessity intensify the impression which these are intended to serve. So far he is a student of natural science, and as such his presentation of the connexion between the phenomena of flight as seen in nature and the operation of natural laws is of direct and primary value. 'Nature,' he says, 'is full of infinite causes which were never set forth in experience.' But in the mind of their author these facts are considered in relation to an ultimate problem.

From the fact of the bird acquiring lightness by extending itself and spreading out its wings and tail, he deduces the principle that that heavy substance shows itself lightest which extends over the greatest space—and so to the problem :

from this conclusion it may be inferred that the weight of a man can be supported in the air by means of a great circumference of wings. (E 39 r.)

The objections are put into the mouth of an imaginary opponent, who urges that the sinews and muscles of a bird are incomparably more powerful than those of a man

because all the girth of so many muscles and of the fleshy parts of the breast goes to aid and increase the movement of the wings, while the bone in the breast is all in one piece, and consequently affords the bird very great power, the wings also being all covered with a network of thick sinews and other very strong ligaments of gristle, and the skin being very thick with various muscles. (*Sul Volo d. Uccelli* 17 r.)

But Leonardo shows that this great strength gives the bird a reserve of power beyond what it generally makes use of in order to support itself on its wings, which enables it to fly very fast or very high or to bear in its talons a weight corresponding to its own weight. Man has not any such great reserve of power, but he possesses nevertheless an amount of strength which Leonardo estimates to be more than double that which is required by his own weight.

The first model took the form of a pair of large wings worked by means of the arms, or arms and legs, and attached to the body by a band which passes beneath the armpits. It was in such a fashion that the sculptor of the bas-relief on the Campanile had represented the art of Daedalus.

The type in nature which Leonardo selected to serve as a model was the bat, ' because its membranes serve as an armour, or rather as a means of binding together the pieces of its armour, that is the framework of the wings.' (*Sul Volo d. Uccelli*, 16 r.) He admits that the wings of feathered creatures are more powerful in structure of bone and sinew, but attributes this to the fact that they are penetrable; that is, that the feathers are separated so that the air passes through them, whereas the bat is aided by its membrane, which is not penetrated by the air.

He has also shown that birds like the lark which fly high with the rising of their wings, because these are then pierced through with air, have their feathers spread out more widely than birds of prey which can only rise by a spiral or circular movement. He attempted, therefore, to combine both types by making the wing of the instrument like that of the lark as it rises and like that of the bat as it descends—or, as he calls it, ' a method by which the wing is full of holes as it rises and closed up when it falls.'

(B 73 v.) This he did by attaching various shutters (*sportelli*) to the surface of the wing. The drawings of these, together with the notes in MS. B of the Institut, render possible an exact description. A net connected the framework of the wing, to the canes of which the shutters were fastened along their length on the one side, and on the other side were attached to them by cords at either end. The shutters had rims of cane and were covered over with taffeta, which had been either well soaped or rubbed with starch to render it airtight. As the wing rose the air would pass through the net, and force open the shutter to the extent allowed by the cords. As the wing descended the air below it would drive the shutter up against the net, and so close up the holes, and this would cause the wing to present a solid surface to the air beneath it. He considered that in proportion as the shutters were smaller so they were more useful.

There is a certain natural sequence in the various drawings in the *Codice Atlantico* and MS. B of the Institut, in which the instrument, or a part of it, is reproduced, and this enables us to trace the general progress of the design. The first intention, apparently, was to construct wings which should be attached immediately to the body—in the classification of instruments by M. Berget this is the type known as *ornithoptères*. Then the necessity of bringing all the muscles of the different parts of the body into play caused the machinery to become more complex, and as a greater amount of force was made available to move the wings it became possible for these to be constructed with a larger surface.

In the second type the instrument has something of the appearance of the body of a huge dragon-fly, tapering slightly towards the tail, and the framework of the wings arched above the head resembles antennae. Within the body the aeronaut lies at full length, face downwards. His feet are in stirrups, which work the wings by means of cords, one of these causing them to fall and the other to rise. Round the neck is a leather band to which a cord is attached, described as ' a rudder which is fixed with a band to the head at the place of the neck.' (B 75 v.) The position of the instrument he states to be such that the wings in descending drop partly downwards and partly backwards, that is towards the feet of the man. The necessity of increasing the power of control led him so to change the mechanism that the wings were lowered by the force of both feet at one and the same time. By this means the downward pressure becomes twice as great and

> you are able to delay and to maintain yourself in equilibrium by lowering one wing more rapidly than the other according to necessity, as you see done by the kite and other birds. (B 74 v.)

The raising of the wings will then, he says, either be by the force of a spring, or by the hand, or by drawing the feet towards you, the last being the best method, because then the hands are left free.

In a passage in the *Sul Volo degli Uccelli* (fol. 6) he says that a man in a flying machine should be free from the waist downwards to be able to balance as in a boat, so that his centre of gravity may balance that of the machine.

With the various drawings of instruments are notes as to the materials of which the parts are to be constructed. Sometimes a word or more is written in the particular part itself, such as 'staff of green pine,' 'fustian,' 'taffeta,' 'try first with leaves of chancery,' which latter may be interpreted to mean a form of parchment. Two parts of the covering of a wing are described, one as of 'fustian stuck over with feathers,' the other of 'starched taffeta,' 'and for the experiment,' he continues, 'you will use fine pasteboard.' (B 74 v.)

The joints are to be of stout tanned leather bound with strong raw silk, and no iron clasps are to be used, because either these are soon broken at the joints or else they become worn out. The joints of the canes are to be padded with leather. The springs may be made of ox-horn, and, for the purpose of a model, quill pens may be used. As an alternative, the springs may be of steel wires of equal thickness, number, and length. The staff is to be of stout canes, and it may be made as long as is necessary because it is made up of pieces. The cord is to be a strip of ox-hide, well greased, as also should be the bindings where it plays, or these may be smeared with soft soap. In order to lessen the risk of accident the cord should be double. 'For the wings you should make one cord to bear the strain and another more slack in the same place, so that if the one is strained and breaks, the other remains for the same purpose.' (H 29 v.)

The same forethought prompts a note that the machine should be tried over a lake, and that a long leather bottle should be carried in the girdle as a safeguard against drowning in case of a fall; and again, in writing of another type of machine, he says: 'Try the actual instrument in the water so that if you fall you will not do yourself any harm.' (B 89 r.)

The various notes and drawings which relate to what was probably the latest type of the machine are among the most difficult to interpret. The machinery, although more compact, has become more complicated, and an attempt to define the practical value of the parts of it is only possible to the practised student of mechanics. A drawing of a man (B 79 r.) suspended by the waist, in an attitude as though swimming immediately below the drum round which the cord is turned, is apparently a

preliminary to this latest type; the note below it describes how it may be worked either with one pair of wings or with two, and refers to a ladder or ladders of light thin pine at the base. These ladders are found only in the latest type of the instrument, and he defines their use as serving the purpose of legs when it is desired to rise above a plain, and so rendering it possible to beat the wings. He mentions the instance of the martin, which cannot raise itself by flying when settled on the ground, because it has short legs. A drawing shows how, after the ascent had been commenced, the ladders are to be drawn up so that they lie flat against the bottom of the instrument. They are made with curved ends in order apparently to lessen the risk of their becoming fixed in the ground. Finally, the position of the man is changed.

I conclude [he says] that standing upright is more useful than flat on one's face, because the machine can never turn upside down, and moreover the habit created by long use requires it thus. And the rising and falling of the movement will proceed from the lowering and raising of the two legs, and this is of great force, and the hands remain free, and if one had to be flat on one's face the legs in the fastenings of the thighs would have great difficulty in supporting themselves; and the feet have the first shock when it alights. (*C.A.* 276 v.b.)

A drawing in MS. B of the Institut (80 r.) is the most complete representation of this type of the instrument. In it the figure of the man is seen standing on his feet, but bowed like Atlas under his burden. Above him are two pairs of wings, which are worked by cords and pulleys controlled by his head and limbs. He is placed between two posts, which support at the top a wheel. Cords passed round it raise and lower the wings as the wheel moves. The posts descend to the base of a low basket-shaped car, where are pedals on which the man stands. These pedals are connected by cords with the wings. The car is resting on short ladders. Above the drawing is a note:

The man exerts with his head a force equal to 200 pounds, and with his hands he exerts a force equal to 200 pounds, and this is the man's actual weight. The movement of the wings will be crosswise, like the gait of a horse.

So for this reason I maintain that this is better than any other.

Another note below states the dimensions:

Ladder to mount and descend; let it be 12 braccia (6 yards) high, and let the span of the wings be 40 braccia, and their elevation 8 braccia, and let the body from poop to prow be 20 braccia and 5 braccia in height, and let all the outer framework be of canes and linen.

In its general outline the instrument has some resemblance to certain examples of the type known as *helicoptères*. But both in this and in the earlier model, of which the general structure has

somewhat more resemblance to certain types of the modern aeroplane, the only motive power to be discerned is derived directly from the strength of the human agent. The capacity of the instrument to overcome the resistance of the air is the capacity of his muscles to lift weights and to endure pressure, transferred to this particular purpose by the use of suitable implements. Numerous passages in the manuscripts show that Leonardo doubted the adequacy of this power to accomplish more than at most short experimental flights. He contrasted it with that reserve of power possessed by the larger birds, and he sought for a fresh source of motive power to supplement or take the place of that exerted by man.

It was in this that his researches were most in advance of his time.

On a page of MS. B of the Institut (83 v.) is a drawing of a large screw constructed to revolve round a vertical axis. The notes at the side and below the drawing tell of the materials and dimensions, and reveal also the purpose which it was intended to serve :

> Let the outer extremity of the screw be of steel wire as thick as a cord, and from the circumference to the centre let it be 8 braccia.
>
> I find that if this instrument made with a screw is well made, that is to say made of linen of which the pores are stopped up with starch—and is turned swiftly, the said screw will make its spiral in the air, and it will rise high.
>
> Take the example of a wide and thin ruler whirled very rapidly in the air, you will see that your arm will be guided by the line of the edge of the flat surface. The framework of the above-mentioned linen should be of long stout cane.
>
> You may make a small model of pasteboard, of which the axis is formed of fine steel wire, bent by force, and as it is released it will turn the screw.

M. Govi, who first called attention to the significance of these passages in a paper presented to the French Académie des Sciences (*Comptes Rendus de l'Académie des Sciences*, 29 Août 1881), speaks of them as proving not only that Leonardo invented the screw-propeller, but that he had considered its application to aerial navigation, and that he had constructed small paper models for this purpose which were set in motion by fine bent steel wires.

The function of these springs in the machinery of the instrument is shown in two drawings of a flying machine on page 314 r.a. of the *Codice Atlantico*. The one is a machine of the vertical type, the other a planimetric sketch of the base, within which is written *fondamento del moto*. These, together with an elaborate study of the mechanism of the right wing (308 r.a.), represent the ultimate stage of the conception as found in the manuscripts—which stage is separated from those which preceded it by the addition of a motive power. To this instrument the

architect, Luca Beltrami, does not hesitate to apply the word aeroplane. I am indebted to his detailed description of this drawing in his study (*L'Aeroplano di Leonardo*), issued on the occasion of the aviation meeting at Brescia in the autumn of 1909. Signor Beltrami's wide technical knowledge, combined with his enthusiasm and interest in all that concerns Leonardo, have caused his description of what is a technical drawing to be eloquent in exposition. Would that some measure of its clearness might survive in my abbreviated rendering of it!—

'The apparatus consists of a rectangular horizontal plane, from the middle of the longer sides of which rise two vertical shafts made firm by two supports crossed diagonally. The vertical plane so formed is made rigid by two pairs of supports which connect the upper extremities of the shafts with the angles of the plane of the base. Two strong springs, each fastened at one end to the centre of one of the lesser sides of the horizontal plane, are bent round its sides by means of ropes, which by the interposition of pulleys are made to turn round a horizontal axle placed at the base of the two shafts; a cog-wheel situated in the centre of this axle allows the force stored up in the springs in tension to be able gradually to relax the rope, so causing the revolution of a second axle parallel to the first, and at the extremities of this are cranks for the purpose of moving the wings. These wings are poised at the upper extremities of the shafts, the right wing being fixed upon the left shaft and *vice versa*, so that the space between the two shafts, along which the motive power is exerted, forms the arm of a lever of which this power may avail itself.' Each wing is moved by a vertical rod which is looped to the shaft by two rings, and gliding through these it is able to be raised and lowered according as the fastening to one of the above-mentioned cranks is loose or tight. The lowering of the rod not only moves the arm of the lever, of which the wing is a continuation, but displaces a pulley which turns the cords that correspond to the various loose sinews, which together make up the subsidiary structure of the wing; consequently, as the wing is raised and lowered, these sinews and the surface of the wing are expanded and contracted.

All this relates to the construction of the parts of the instrument.

Signor Beltrami, in a few sure words, shows how these parts would be controlled by the human agent:

The man who guided the machine had his place in the part of the horizontal plane enclosed within the two springs where the words *fondamento del moto* occur in the sketch. He had the cog-wheel in front of him, and could by a simple turn so adjust its revolution as to allow gradually and at his pleasure the ropes pressed by the springs to relax, and so cause the revolution of the axle where are the two cranks which communicate with the wings; as the slackening of the rope is quicker or slower, so the beating of the wings is more or less rapid, and so the flight is controlled.

If Leonardo did not enter the Promised Land, here, surely, he had a Pisgah-sight of it! In arriving at this stage he was separated from that of ultimate attainment only by the lack of knowledge of a light motor with power sufficient to move the mechanism, such as has only been rendered possible by the use of petrol.

In the history of discovery, in the words of Lilienthal, 'the trial is everything.' It remains to consider the evidence of actual construction and experiment. Except for the sentence in the *De Subtilitate* of Jerome Cardan, already quoted, this evidence consists of passages in the manuscripts; these are the more difficult to interpret because they exhibit that tendency to mystification which is not infrequently in evidence there; which, for example, led him to invert the order of the letters in the names of places in a note about the arrangements for a proposed journey to Rome and Naples, and which has caused some of the place-references to be a perpetual stone of stumbling to the commentator. But for the letters patent of his appointment to the office of military engineer to Caesar Borgia, such records of his visit to the fortresses of the Romagna as are to be found in the manuscripts might be thought to be merely the notes of an autumn holiday of a mind eclectic in its interests in art and nature: so likewise by contrast with the precision of the inquiry as to principles, the records of experiment in flight have something of the inconsequence of a dream.

An enigmatic sentence on the cover of *Sul Volo degli Uccelli*, which was written in 1505, refers apparently to an attempt which was then shortly to take place:

> The great bird will take its first flight upon the back of the great swan, filling the whole world with amazement, and filling all records with its fame; and it will bring eternal glory to the nest where it was born.

In 1505 Leonardo was at Fiesole, and 'the back of the great swan' was probably a reference to Monte Ceceri, the mountain to the south-west of Fiesole. The word for swan in Italian is *cecero*, and Leonardo is playing upon the double significance of the word. The flight referred to is believed to have been a trial of the machine from one of the peaks of Monte Ceceri. Apparently the trial was made under circumstances of some publicity, and it may conceivably have been that of which Cardan chronicled the ill success. A dated note in the *Codice Atlantico* (318 v.a.)—'to-morrow morning, on the 2nd of January 1496, I will make the leather for the straps and the trial'—when read in conjunction with the notes as to materials to be used in construction, may be interpreted as possibly a reference to an attempt to use a machine for flight, and if this is the case the date of this

attempt is more than nine years previous to that made during Leonardo's visit to Fiesole.

On another page of the same manuscript (*C.A.* 214 r.d.) various notes reveal the scene and something of the method of another trial, and afford a glimpse of the precautions which he took in order to prevent the secrets of his discoveries from becoming known. The reference is apparently to small models such as those referred to in the passage in which the screw is mentioned.

> Make a small one over the water [he says], and try with the wind in a small space of water over some part of the Arno, with the wind natural, and then as you please, and twist the sail and the rudder.
>
> See to-morrow to all these chances and the copies, and then deface the originals and leave them at Florence, so that if you lose those which you carry with you you will not lose the invention.

To these records of actual experiment may be added that of yet another page of the *Codice Atlantico* (311 v.d.). It contains three studies of artificial wings. Of these the most elaborate has a very strong frame, which would make it heavy to work. Its main support is curved like a collar-bone, and the lower part where it divides crosses the wing to a point about one-third distant from the shoulder to the tip. There is a considerable amount of detail, and the wire cords which cause the wing to open and shut are clearly indicated. Above it are the words 'for Gian Antonio de Mariolo,' and below 'not to make it with shutters (*sportelli*) but united.'

The only reasonable inference to be drawn from these notes is that they refer to the construction of a machine for flight as a commission for a patron whose name was Gian Antonio de Mariolo, who had moreover given Leonardo instructions that the wings should not be made with the self-adjusting shutters (*sportelli*) which occur in some of Leonardo's studies, but should be united—that is, not such as to be penetrated by the wind. This commission, of which nothing more is known, is surely the earliest of any in which the subject is a machine for artificial flight! After a lapse of four hundred years it has had successors.

EDWARD MCCURDY.

STATE REGISTRATION OF NURSES:

A REPLY

MRS. BEDFORD FENWICK gave in your June number the arguments for the State Registration of Nurses. I should esteem it a great favour if I might have an opportunity, however limited in space, for stating some of the arguments against it.

The opposition to the State Registration of Nurses she declares to be 'unreasonable and prolonged,' and to be due—though she does not say how—to some supposed 'attack on vested interests.' But the opposition cannot be thus airily dismissed.

Our opposition is 'prolonged' because the agitation for Registration is equally prolonged, and we are obliged to fight so long as this agitation goes on.

It is no argument to call those who oppose 'unreasonable.' The single Irish juryman who held out against the unanimous decision of his fellow-jurymen declared that 'he had never met eleven such unreasonable and obstinate men.' At any rate, in this case the opposition comes from people whose lives are spent in nursing and amongst nurses or in hospital work. The protest against the Registration of Nurses is signed by no fewer than sixty-six matrons of hospitals in London, by 178 matrons of provincial hospitals (244 matrons), by, without any organised canvassing, 1332 nurses, by ninety-one chairmen of hospitals and other people interested in and working for hospitals, and by the Central Hospital Council, representing all the leading hospitals in London. Such an opposition cannot be dismissed by being called 'unreasonable,' or by suggesting that we are all actuated by some sinister motives.

Mrs. Bedford Fenwick states that 'the want of organisation has produced a marked deterioration in the quality of women presenting themselves for training.' How can this be when there never has been an organisation? If an organisation had once been in existence and had been ended for one reason or another, it might be argued that any deterioration in the quality of candidates was due to such change. But how can there be a deterioration

on account of a change which has never taken place? And what woman who really cares for nursing the sick would be deterred from joining the profession because there was no organisation for putting her on a Register? Did this deter Miss Nightingale? Did the really dreadful state of things in the nursing world in past years deter those noble women from joining who were the pioneers in the work? I have a great deal to do with the engaging of probationers, and I can certainly say that we do not want at the London Hospital any woman who cares so little for nursing the sick that she is deterred because she cannot be on a Register.

Those who oppose Registration believe that Registration will be harmful and dangerous because the public will be led to believe that by getting a nurse who is on this Register they will be getting a good nurse, a woman to whom they can safely leave the nursing of a precious life, whereas all they will get will be a woman who perhaps ten years ago passed a necessarily easy examination and left her hospital with a good character, and about whom nothing is known since except that she has not been convicted of crime or guilty of grave professional misconduct.

Such a guarantee would be actually misleading. The fact that a nurse was on the Register could not guarantee her character or her fitness to be a nurse. Mrs. Bedford Fenwick makes much of the fact that the last two women hanged at Holloway were employed as nurses in connection with a maternity home. I have not verified this, but she carefully avoids pointing out that registration would *not* have stopped their evil doings. Then why refer to them except to mislead? It is not suggested that it should be penal for any woman to nurse who is not registered, but only that it should be penal for a woman to call herself a 'registered nurse' who is not registered. These two sinners would never have dreamt of calling themselves 'registered nurses,' nor would the suggested Register have included them even if they had wished to be registered. It does not appear that they had ever been in a hospital at all. So why refer to them? Their sins and their violent exit from life have no more bearing on the question than the sins and endings of any other criminals.

But let me refer to a much more striking example on the other side, and one that has a very direct bearing on this question.

The last woman convicted of stealing jewellery from the Army and Navy Stores was not only a nurse but was a 'registered' nurse, a member of the Royal British Nurses' Association—a voluntary association for registering nurses; and in passing let me remind my readers that the proposed State Register is also to be only a voluntary one. I attach no importance to the sad fact of a 'registered nurse' stealing. I do not know what the poor woman's temptations were. But it is all-important to note that

in her defence her counsel urged that five years before she had met with a severe accident, and that 'ever since she had been quite unfit to undertake any responsible work'! And during all those five years she had been a 'registered nurse,' going about guaranteed to be a fit and proper woman to employ as a nurse; and an innocent and non-inquiring public would naturally have concluded that she was a fit woman to have been taken into any house to nurse an invalid!

Here is a certain danger. You cannot remove a woman from a Register till she has gone very openly 'over the traces,' and until she does so she is going about guaranteed by people who know nothing about her. A false security is more harmful than a recognised danger. Who will question this?

And who, may I ask, is going to incur the odium and risk of getting a woman removed from the Register? Suppose I engage a nurse, and suppose I discover that she is quite unfit to be a nurse, is it reasonable to suppose that I am going to write to a Central Council and say that I have reason to think that she 'takes more than is good for her,' or that she seems to me to be a selfish or careless or unkind woman, or that she is the very reverse of a blessing in any household which may be unfortunate enough to engage her? Why, if I did this I should be in for a libel action at once, and even if I proved any of the above facts, unless the drinking or the bad conduct were very serious, no Council could possibly strike her off the Register, and she would remain on, guaranteed to be an efficient nurse and one who might safely be employed! What misery and mischief such a woman could spread! The Royal British Nurses' Association have actually been advised by counsel that they could not remove from their Register a woman who was 'dotty,' but must wait till she be declared a lunatic. A nice state of things that a nurse who was 'dotty' should be going about 'guaranteed' by a State Register! What would happen if one had the misfortune to engage such a nurse would be that one would get rid of her as soon as possible: one would thank God when one saw the last of her, and would certainly never be bothered by communicating the facts to a Central Council. But one thing is sure, and that is that anyone who has so suffered would say 'No more registered nurses for me,' and the good nurses would suffer for the wrongdoing of the bad.

I have shown that registration could not secure to the public the character of the nurse. I will go further and show that it would not secure even technical knowledge and fitness, certainly not suitability for any special case. Practical efficiency in nursing cannot be ascertained by any examination yet devised.

Nursing changes very rapidly. Some years ago the book

issued to the nursing orderlies of the Army Medical Corps had to be revised by the Army Nursing Board. Nearly every paragraph needed alteration to bring the nursing instructions up to date. If a nurse—say, ten years ago—when she left her hospital was a fit and competent nurse, and passed the registration examination, this would not at all imply that she was technically qualified to-day. New methods of nursing are constantly introduced, new operations are done. Appendicitis was not invented a few years ago. We can all remember the introduction of quite new methods of asepsis; and, without going further into details, I say that a nurse, unless constantly employed by the best surgeons and doctors, is very apt indeed to get out of touch with modern methods and modern nursing. Yet, once on a Register—provided she did not steal or murder or had not been proved guilty of some gross breach of professional conduct—she would remain on the Register, 'guaranteed,' to use Lady Helen Munro Ferguson's words in this Review,[1] 'guaranteed to the public as to her professional efficiency and general fitness for employment.' What a farce, and what a danger!

The State Registration Bill does not profess to, and cannot, stop women posing as nurses who are not nurses; it will only prevent women calling themselves 'registered nurses.' I find that few people realise this.

The proper remedy for the present state of things is to have an 'Official Directory of Nurses,' a 'Who's Who' of nurses, setting out opposite every nurse's name the training she has been through. Such a directory should have stated on every page that the fact of being in this directory in no way guaranteed a nurse's fitness for employment, but was only a guarantee that the nurse's statements had been verified and that she had been through the training opposite her name. After all, it is the doctor and not the patient who, as a rule, engages the nurse. If a doctor, then, employed a nurse who had only had the experience that the two hanged Holloway women had, then he would know what he was doing. Such a Directory would stimulate the public to inquire about a nurse before or after she was engaged, and there would be no false security—the false security of thinking that you had a good nurse because her name was on a Register—and no one would be led to believe that any further inquiry was unnecessary.

If this Registration Bill were to pass, certainly no nurses on the private staff of the London Hospital would register. So the Bill would not in any way affect the hospital of which I have the honour to be Chairman. We should be as proud then as we are now that the public should know that a nurse engaged from the London Hospital goes to her case guaranteed by people who know

[1] *Nineteenth Century and After*, February 1904.

her, with the reputation of her hospital at stake; and though it is the 'common stock' of the few who are at the head of this registration movement to speak against the London Hospital and its nurses, the reputation they have made for themselves, as literally thousands of the public and the medical profession have testified year after year, is too well established to be damaged by irresponsible, and in some cases spiteful, chatter.

SYDNEY HOLLAND.

'YOU WOULD HARDLY BELIEVE IT'

TIME moves very rapidly, and things achieved become almost immediately the things we are accustomed to; the details of the achievement are soon forgotten and the past buried in oblivion.

The phrase 'You would hardly believe it' fits in exactly to the story one has to tell of the past: the story of the state of nursing in the Crown Colonies and small British communities in foreign lands fifteen years ago—a short time, after all, and within the memory of many Colonial officials now serving! Yet fifteen years is a long time from another point of view—that of forgetfulness—and I shall make no apology for repeating this story of fifteen years ago, though it has been told once or twice before.

It was difficult then, it is difficult now, for those living at home, in easy communication with nursing centres, to realise that in many of our Colonies no nursing aid whatever was obtainable, while in others the patients themselves had to travel great distances to obtain such aid as the Government hospital, if such existed, could afford. Here we have not only our huge hospitals, supported by voluntary contributions, the glory of our country, which take the place, with numberless other institutions, of the Government hospitals in our Colonies, but we have also an enormous supply of trained nurses available at a few moments' notice—no delay, no difficulty, no danger of the supply running short. But in these other places, in the Colonies, things are different. Government hospitals are a necessity and now almost universal. For many years these hospitals provided care and nursing to the natives and poorest classes of the community, but there the obligation of the Government ceased, and for the better class and well-to-do members of that community no help or succour whatever was available. Assured and consoled by the knowledge that Government hospitals existed, the vast majority of English people rested content and made little inquiry as to what befel their fellow countrymen and women landing daily on far-distant shores. We talked of such and such a place (often from sad personal knowledge) as 'the white man's grave'; we heard stories of death or untold suffering bravely and patiently borne by these pioneers

of Empire; they fought death hopelessly, often alone and far from any possible help, and yet England did not realise the cruel wastage of life which was going on! Preventable wastage, unnecessary wastage, only needing a little organisation, a little energy, to obviate. It is to the credit of that boundless enthusiasm which a good cause always arouses in England, directly it is known, that this wastage was immediately arrested, and to a large extent obviated, by the foundation in 1896 of the Colonial Nursing Association.

'You will hardly believe' the state of things which existed in a Crown Colony to which the exigencies of the Colonial service led my steps in 1895. There was a Government hospital in the big seaport town, built long before malarial fever had devastated the place, but now condemned for Europeans as being 'below fever level.' The nursing staff consisted of untrained French Roman Catholic sisters—devoted women, but useless for the purposes of outside care for the white population. For that large 'uncared-for' class—the Civil servants from the Governor downwards, the large military garrison, the navy, the assistants in banks and big business houses, to say nothing of the wives, mothers, and children—there was absolutely no provision whatever. While I was there case after case occurred of splendid young Englishmen dying of typhoid on up-country sugar estates, not a soul near them but native boys, the distracted doctor being forced to leave them alone, often after spending hours into the night in a vain endeavour to defeat death, and returning in the early morning to find his patient dead on the floor, the terrified native servant having been ordered by his master to give him the forbidden food or tobacco. Two midshipmen from the flagship were landed with typhoid fever. No nurse, no suitable hospital available! By the kindness of the military authorities these young lads were carried up into the hill camp, where they were nursed by orderlies until the death of one and partial recovery of the other, no woman having been with them throughout the illness.

Again, the wife of a young officer, daily expecting her confinement, was overwhelmed by the sudden and dangerous illness of her other child from malaria and dysentery. The only available help for mother or child was a negress from Madagascar, called a *sage-femme*, and she, with an Indian ayah, was the sole creature the poor husband had to rely upon. Mercifully, friends were able to help, and both mother and children survived, but at what cost to health and nerves only those present during those days can ever know. Again, I knew a young wife having to attend single-handed to her dying husband, her only child struck down with dangerous illness at the same moment. In this case the husband died, after weeks of intolerable mental anguish to the

poor young wife, only recently arrived in the Colony, staying in an up-country hotel, and with naturally hardly an acquaintance in the place.

And still England did not realise what her children were going through, and the Governments in these places did not stir.

Cases like the above brought home to me what was happening daily in those Colonies where trained nurses were as yet unattainable. It seemed to me a blot on our Colonial administration that such a state of affairs should exist, seeing that with some effort, some organisation, the large number of trained women ready to go might be utilised and made available, and thus, by the establishment in every Crown Colony of trained nurses *available* for outside work, much cruel suffering and frequent mortality might be averted. It became the possessing dream of those who founded the Colonial Nursing Association so to arouse public sympathy at home that no Government hospital establishment in our Colonies should be considered complete without provision being made for one or more trained nurses attached to the permanent staff, whose services should be available for those valuable lives at present left utterly uncared for. 'You would hardly believe' that it was not realised in England that the Government hospital system, as then worked, was utterly useless to those patients needing it, willing to pay for it, in their own homes. There was no care available for the brave young wives and mothers going through experiences their friends at home were horrified to hear of, for the small children born in or taken to these tropical places, who fell ill, to the terror of their young, inexperienced parents with absolutely no one to whom they could turn for advice or for assistance to carry out the doctor's orders; for the lonely man without home ties in his up-country bungalow, too far away to be brought down to hospital—all these helpless lives crying aloud for assistance and care, 'you will hardly believe' that their cry could have gone so long unheeded, or how quickly came the response once it was heard. And yet they were our own people, our own flesh and blood, upholding British interests and the honour of the Empire, and laying down their lives in that Greater Britain beyond the seas as surely as if they died on the field of battle.

I can recall now the lovely tropical moonlight night which saw the inception of the dream; the small band of enthusiasts gathered round our dining-table whose endeavours in later days led to the realisation of the dream. Once invoked, the sympathy and practical aid of the Governor of that Colony knew no bounds, and after a few months spent in collecting evidence from other Colonies the dreamers sailed for England to organise the campaign.

From those first early days which saw the strenuous negotiations with the Colonial Office, the gracious, kindly, and immediate sympathy given by our Patroness, H.R.H. Princess Henry of Battenberg, the many interviews and consultations with our very beloved first President, Lord Loch, and the enlisting of those members of committee who worked so indefatigably on the foundation, from those early days, as time goes, it is only fifteen years, and already the Colonial Nursing Association is looked upon as having been always with us! That is, I think, testimony to the immense work it has achieved, and is also due to the fact that people to-day 'can hardly believe' in those days of which I have been speaking. Mr. Chamberlain, who was then Secretary of State for the Colonies, gave, with Mrs. Chamberlain, unstinted help directly the scheme was elaborated and brought to his notice, and I still remember the pride with which we were able to present at our first small public meeting, held at Sir Cuthbert Quilter's house in South Audley Street in July 1896, the following circular letter which the Secretary of State had consented to send round to the Governments of the Crown Colonies:

Downing Street, June 27th, 1896.

SIR,—I have the honour to transmit to you the prospectus of the Colonial Nursing Association for providing trained private nurses in the Crown Colonies. It appears to me that the scheme of the Association is a good and practicable one for providing skilled nurses for persons who can afford to pay for their services in Crown Colonies where there is no sufficient supply of trained nurses available for private work, and I would recommend that, although the scheme is entirely independent of the Government, you should do all in your power to encourage it if the want which it is intended to supply exists in the Colony under your government.

I have the honour to be, Sir,
Your most obedient humble servant,
J. CHAMBERLAIN.

In addition to this 'official blessing,' we had also begged for the selection and appointment of any nurses required for Colonial hospitals to be placed in the hands of the Association, realising what an additional inducement to our own service (nurses for *private* work) these desirable, and in many cases pensionable, posts would be.

We had already started work with two nurses despatched in the early spring of 1896 to the far-away Colony of which I have spoken. They mercifully arrived in time to nurse two officers, struck down with typhoid fever, who otherwise would have stood small chance of pulling through this terrible disease; and since that date close on five hundred fully trained nurses have left England for that wider sphere of action, where their work has saved hundreds of lives and brought help and comfort to numberless hearths and homes.

A word here as to the method adopted may be of interest, in case there is still a far-away corner where British people congregate and the Colonial Nursing Association is yet unknown, the help it was founded to give still unasked for. The aim of the Association is to help our Colonies or small British communities in foreign lands to help themselves, to act as the *machinery* which will provide them with permanent nursing assistance. In other words, the Association undertakes to select and forward nurses to any place requiring them, on the understanding that a representative committee of residents will do its utmost to raise sufficient funds for the maintenance (board, lodging, and salary, &c.) of nurses so sent. The Association guarantees any deficit which the residents may not be in a position, at first, to meet, and advances the initial outlay of passage money, &c., trusting that in every instance the local fund, together with the nurses' fees earned, will be sufficient to enable the movement to become self-supporting when once the initial difficulties of sending out the nurses are overcome.

The fundamental idea was not charitable in the sense of giving gratuitously the services of skilled nurses to patients *unable* to make payment, but the Association was to be the machinery, so to speak, wherewith to provide care and nursing to sick and suffering persons able and willing to pay for such services, but who, without such central organisation, were unable to obtain such care for love or money. Individual and isolated efforts had been made in these helpless British communities to secure trained nurses, but, owing to lack of funds or organisation to meet the severe and often unlooked-for difficulties and changes attaching to shifting and unsettled localities, these efforts had not met with permanent success. 'You would hardly believe' that before the establishment of the Colonial Nursing Association there was *no* organisation to which Colonies or communities desiring nursing aid could turn for help. Now the Colonial Office takes advantage of our Association for the selection of matrons and nurses for all Government posts; the Foreign Office applies for all nurses sent out to the Protectorates over which it rules, while in addition British communities in such widely apart foreign places as Siam, Japan, Costa Rica, Oporto, Lisbon, Venice, Teheran, form committees and apply for nurses in their midst.

The effect of the above patronage becoming known at once made the service a favourite one in the nursing world; thus the supply of fully trained women has hitherto always been equal to the demand, and 'the Colonial,' as it is shortly termed in the profession, is the most sought-after field of action for the more adventurous members of the nursing profession, leading as it

does to matronships in Government hospitals and in many cases, after good service, on to the pensionable staff of a Colony.

The funds raised in those early days were substantially supplemented by the generous response to an appeal issued by Mrs. Chamberlain in October 1903. Since then, owing to the fact that so many of the 'guaranteed' places have become, as was foreseen, self-supporting, directly the initial difficulties were overcome, the modest income available has sufficed; but a pension scheme for the benefit of nurses of loyal service lies very near the hearts of those interested in the work, and may one day, perhaps, also become a 'dream' realised.

The stories sent home from the places served by the Association's devoted nurses would fill a volume, but one or two may be of interest to readers of this Review, for it is surely true that in this England of ours there can scarcely be a home, be it castle or cottage, which has not 'one vacant chair,' at least one absent member doing his or her part in that Greater Britain beyond the seas. From an up-country Malay State a nurse reports nursing a case of typhoid fever where for eight days she could not get doctor or ice, and only a little inferior milk! She was entirely alone save for two Chinese boys, and her patient was delirious from the first. Later, the same nurse reports: 'I am booked for maternity cases in out-stations and jungle from the 14th of January to July.'

In Costa Rica the solitary nurse attended four maternity cases, six typhoid cases, and two malarial fever cases in twelve months! All her patients recovered. These are typical cases of the work going on wherever our nurses are stationed; and another most interesting branch of our work is that of the South African Church Railway Mission, where our nurses live on the railway and travel up and down, nursing among the scattered homes of the Dutch and English families living along the line. The Rev. Douglas Ellison, head of the Mission, is very desirous to push on this scheme and see it at work in the Transvaal, which, he says, 'shortage of funds alone prevents our undertaking.'

The following list of places served by the Association may be of interest, and help readers to realise more clearly what an alleviation to the 'white man's burden' in these outposts of Empire it may claim to be:

List of Places Served by the Association

Government Nurses.—British Guiana, Ceylon, Cyprus, the Falkland Islands, Gibraltar, Malta, Hong Kong, the Straits Settlements (Singapore, Penang), the Federated Malay States (Perak, Kuala Lumpur, Seremban, Kinta Perak, Negri Sembilan, Pahang), St. Helena, Western Australia, British East

Africa (Mombasa, Entebbe, Nairobi), Nyasaland (Zomba, Blantyre), West Africa (the Gold Coast, North Nigeria, South Nigeria, Sierra Leone), the West Indies (Trinidad, Bahamas, St. Vincent).

Private Branches.—Bangkok, Costa Rica, Ceylon, Cyprus, Hong Kong, Tokyo, Lisbon, Madrid, Mauritius, Oporto, Shanghai, Singapore, South Africa, Teheran, Tientsin, Venice.

This little organisation, doing its work steadily, quietly, with no other aim than help to the helpless, care for the suffering, and tender sympathy for the dying, of our own race, our own blood, our own class, *must* be approved by every English man or woman under whose notice it comes.

I feel I cannot sum up the aims and hopes of the Colonial Nursing Association in better or more powerful words than those used by Mr. Chamberlain, while Secretary of State for the Colonies, at the close of his speech on its behalf at the great public meeting held in Edinburgh in October 1901 :

Think of the vast dominion over which the British flag flies which is not a natural home for Europeans, in which the climate is a constant source of danger. We remain at home; these men who are carrying the honour, sustaining the honour and the interests of the Empire abroad, have difficulties to encounter which we can hardly, perhaps, sufficiently appreciate. If this great work is to be continued with effect and success, we must do everything in our power to make life more healthy where now unfortunately it is so dangerous. Think for a moment what is the condition of a man employed by the Government in this great and important work in a Colony to which his constitution is not adapted, where the circumstances are not thoroughly understood, struck down by an illness which ought not to be fatal, but which will inevitably be fatal if not properly watched. Think of that man—no society, no friends, no relatives to look after him, and, as has been the case in the past, with no woman of his own colour, of his own race, no woman with her kindly sympathy to attend upon him.

That is what this Association undertakes, as far as means are placed in its power, to obviate.

I believe that the work is a Christian work, a charitable work, and an Imperial work, and I heartily recommend it to you.

MABEL W. PIGGOTT

(Founder and Vice-President, Colonial Nursing Association).

A PLEA FOR THE INTRODUCTION OF MUSIC AMONG THE UPPER CLASSES

THERE are many respects in which the children of the poor fare better than those of the rich; most notably so in education. They do not learn Latin and Greek, it is true, but they learn to read and write properly; they sit on scientifically planned benches, in schoolrooms certified to contain a sufficient number of cubic feet of air, and they learn music. The upper classes do not, unless it be by accident. Perhaps, to avoid an appearance of exaggeration, it ought first to be explained what is meant by 'learning music.' Many girls and boys spend endless hours over the piano, and this sometimes leads to music in the end. But the chief difficulties are mechanical; no one can call finger drudgery on any instrument music. Nor can the kind of singing which is done at many schools have any better claim to be so called. The practice of chants and hymns required for the church service entails certain experience, and we do not deny that some hymn tunes have musical quality. But in all these forms of routine practice music is learned, as it were, by accident, and beyond this few schoolmasters are prepared to go where the upper classes are concerned. Music does not commend itself to them as a serious study, which ought to be an important factor in every child's education, and therefore to be taught systematically and continuously.

Now, in the Board schools things are so different that reading music is almost universally required, and inspectors give few, if any, marks for the old-fashioned rote singing. We are, therefore, emphatically justified in saying that the children of the poor enjoy advantages in this respect not granted to the rich, and, we may add, not yet contemplated for them, unless we may suppose that the headmaster of Eton's visions are backed by a faith that can indeed move mountains of prejudice and tradition.

Listen, for example, to Mr. A. C. Benson, that mouthpiece of enlightened education:

> One desires, then, that boys should arrive at some comprehension of the conditions of modern life, of their own place in the world; and to do this some knowledge of science, of history, of geography, and of modern languages

and literature is essential; they must also be prepared to earn a living, and to do this a real working knowledge of their own language, of simple mathematics, and of at least one modern language is, to say the least, highly desirable. This is a heavy programme.

It is; and yet for all its weightiness it contains no mention of art or handicraft of any kind. We must naturally endorse the necessity of reading and writing (if that is what a working knowledge of their own language means) and a knowledge of elementary arithmetic. We should also agree that one modern language was highly desirable, if we could be convinced that practical acquaintance with French or German could be acquired by ordinary boys not specially intelligent in English schools. But of the usual smattering of information on such subjects as history, geography, literature, and science we have less opinion. Granted that such subjects must be taught, and that their study proves the introduction to a field of lifelong activity, or recreation in the case of certain boys; by the majority such facts are learned only to be forgotten. The skill acquired in the process of learning is the thing that really remains, and perhaps the mind culture which comes from having once surveyed *en passant* vistas of human thought; as for the information, if one may trust an ordinary man's experience, the results of academic instruction vanish almost entirely from the mind in later years unless kept bright by the present necessities of daily life or by that enthusiastic interest in the subject which makes many men's hobbies their chief business.

The skill remains. If a boy has ever got far enough in French or German to speak with fluency or read for his own amusement he will not easily lose that facility; but he will with perfect ease forget the pages of irregular verbs which cost him so much time and labour, unless they are incorporated into that part of the language of which he is able to make practical use. Similarly, a curious skill in glass-blowing is apt to be the only survival of many hours spent on chemistry; and short of a passionate delight in the intricacies of motor cars or electric lighting, the facts of physical science are forgotten with equal ease by those whose work takes them along other ways.

We should, therefore, correct Mr. Benson's heavy programme by adding that whatever store of information he may pick up—and we should lay little stress on its encyclopædic character—at all events, all a boy's natural powers of mind and body should be trained to as high a degree of skill as the ingenuity and enthusiasm of his teachers can effect.

If this were done we should have no quarrel with those who seek to heap up knowledge in the infant mind. Education must, in the main, proceed from the concrete to the abstract; also it is believed that the mind gains by such studies a skill in the conduct

of life and in manners which it would not have had from mere association with others under different auspices. Everyone takes a pride in the fact that he has forgotten so much that he has a right to consider himself liberally educated. Be it so, we have no wish to quarrel with the mill, or the faculties we are supposed to develop by going through it. We only wish to point out that knowledge, academical knowledge which is irrelevant to the immediate problems of life, is certainly lost before long, whereas skill in any department of human activity is remarkably long lived. We never see people who have forgotten how to swim or skate, artists who can no longer draw, or musicians who have altogether lost their facility, as long as the mind and hand retain their powers. We therefore plead that music, drawing, and handicraft should be taught to all boys before it is too late.

The demand is always met with the answer that many boys are not musical or artistic at all. This is true, but the number of them is far fewer than is generally supposed, and, after all, does anyone oppose the teaching of languages or science because certain scholars have no gift for those studies?

It would be common sense to give boys a certain area of choice, so that anyone who is totally devoid of musical sense could do something else instead, but these cases are rare. We should hear less about them if the English public were really convinced of the utility of such studies at all. But they are not convinced, because, as a rule, they have not thought or had any opportunity of forming an opinion from practical experience.

What good things, then, may be claimed as arguments for the universal study of music among the rich as well as among the poor? We have heard of the beneficent effect on moral qualities produced by rhythmical study; of the scope music gives to children's emotional faculties (meaning, we suppose, that if they make a thoroughly satisfactory noise in the choir they will make less at other times). We lay no stress on such fanciful theoretics; they may or may not be realised, but we do lay claim to other and more practical advantages altogether outside the pleasure which music gives.

We should like to see all children taught to read music with their voice, which is the only natural means of expressing musical feeling, because such reading requires concentration of mind and implies a discipline of the utmost value; also because it makes the practice of choral singing possible, and this is almost the only direct means of teaching unanimity of feeling among masses of human beings; and, lastly, because the daily use of such exercises is the best way of realising the traditional function of art, which is to soften and control those barbarous elements in boys' character which are especially in evidence in the Anglo-Saxon race. We

might add that the practice of choral music has a high moral value. It teaches forgetfulness of self, and develops the feeling of loyalty and sympathy with others, of which the present generation seems to stand in especial need.

Surely these advantages are reason enough to convince anyone, however ignorant of music. But there are others which can only be expected to commend themselves to a musician, though surely the veriest layman must admit the importance of teaching, which is the necessary introduction to what everyone allows to be some of the greatest works of genius the world has ever seen.

To plead for reading because without it Shakespeare and Cervantes would remain unintelligible is unnecessary because there are other reasons nearer to hand which are sufficient. Unfortunately these do not exist in the case of music. Mothers may desire its benefits for their sons; not so fathers. They want to see the practical advantages of the study. The world has done without it so long that the reasons for its adoption must be many and potent. We have given them: concentration of mind, unity of feeling, and good manners, combined with a skill which will afford perpetual facilities for recreation. Surely these things are practical enough, but to obtain them music must take a very different place in the curriculum from that which it enjoys at present in most schools. And yet how to get the present system, absurd as it is, altered in the smallest respect is what taxes the courage and imagination of schoolmasters. English education lies chained hand and foot under the tyranny of examination and the attendant scholarship system. If a boy is to get on well in his school work, if he is to pass examinations and get scholarships, music is not only unnecessary but an absolute waste of time. It is not 'marked,' it offers few money prizes; it must be regarded as a 'snare,' a 'delightful snare' perhaps, but as an occupation fraught with manifold dangers.

Faugh! I have read such stuff, heard it, felt it unexpressed so often, that I turn in despair to the common sense, which, after all, distinguishes Englishmen, and cry, How long? How long are children to be sacrificed to these financial considerations; to be trained in their tender years like racehorses to run for scholarship stakes instead of being prepared to use and enjoy all the best that life offers? How long? The system, as Canon Lyttelton points out, runs through a boy's whole education, beginning at the preparatory school and ending at the university.

The result of the system has been to produce complete disseverance in the case of ordinary boys between life and 'work,' as they term it. The boy lives in his games; it is there that he develops himself, wins recognition and social position, and finds all his interest. He does his work, honestly we believe, in the main,

and willingly as far as his natural laziness will allow him. But his striving is to gain marks and keep his place among his fellows. The skill which he is set to acquire does not commend itself to him as either useful or attractive. The literary boy may delight in Greek and Latin, the mathematician in problems; the ordinary boy does not, and yet he must perforce give all his time to such subjects.

He may do other things in his playtime, and often does, one of the chief of them being music; but extra subjects of this kind always suffer from their irregular conditions. They do not enjoy the same consideration as school subjects and must invariably give way to them, and very often to games. The competition system involves all kinds of extra cramming and coaching before the 'event,' when extra studies are the first to be put aside.

As far as music is concerned, and it is with music that I am dealing here, the main opportunities lie with the preparatory school. Most public school boys are, for physical reasons, unable to sing. At the same time, the school at large can be sure of a constant supply of trebles, altos, and basses, which make the practice of the best choral music possible, if the younger boys have been taught to read before they come. And how many of them have had the merest elements of a musical training? Lamentably few. The preparatory schools cannot afford the time, nor does tradition give them the wish to provide it. They are fully occupied with the double duty of getting scholarships at public schools, or it may be only humble entrance for their pupils, and teaching them the games which shall win them social distinction when they get there. And yet anyone who has seen what can be done with young children by capable music teachers must realise what great delight and mental cultivation they are losing in these impressionable years of their youth. The difficulty of the whole question is to make a beginning. Supposing that a private schoolmaster is large-minded and far-seeing enough to institute a proper course of teaching for the boys in his charge; say that he gives them twenty minutes a day for the technical study of reading at sight and the practice of ear training, what would be the result? Application would at once be made to him on any excuse to remit those times for boys going in for examinations. If he failed to do so, anxious parents would begin to be dissatisfied, and very likely his school would suffer. If he started a class for science, though the subject (unless it were nature study) might be fairly considered unsuitable for such young boys, the same objections would not be felt. Science is 'work' in a sense in which art is not.

And yet the advantages of such elementary training to the little boys in question can hardly be overrated. The development of ear, which the practice of sight-reading entails, would mean intelligent appreciation of music to an extent not hitherto dreamed of.

Never to be forgotten are those moments of intense happiness which followed the revelation of a new tune in the days of our childhood.

Then the subtle sense of comradeship, which even a humble part in the production of great music entails, would widen the bond of union in the community. This, we are happy to believe, music does already to some extent provide in many of our public schools. And, lastly, the association with the ideals which are contained in works of art would, if it could ever be realised universally, produce a great change in generations to come. It would help to modify the intolerant attitude of many Englishmen towards art: the contented acquiescence in a state of barbarous ignorance as long as it is sanctioned by tradition and fortified by an assumption of mocking superiority. It might even in time do something towards removing the reproach, so often levelled at England, that it is the most unmusical country in the world.

Education will not turn the hearts of men at one attack, or but rarely. Like the missionaries who seek to evangelise Central Africa, we can only hope to do our work of culture through the children. The old ordeals of fire and sword, the ancient witchcrafts, will persist until the children have learned their white magic. How we can get them properly taught is the pressing question. No argument drawn from the doctrines of the Greeks will convince the modern Grecian; no scientific analogies, however well founded, will persuade the scientist. Examination is the master, and, as far as we can see, music will have humbly to wait as the Cinderella of school subjects until marks (forsooth) be awarded for her troublesome study in public examinations. Then perhaps the children of the rich as well as those of the poor will be given adequate opportunity and attention in this important respect, and education will have gone a step forward of which it is difficult to overrate the importance.

EDWARD D. RENDALL.

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THE POSSIBILITIES OF AN INCOME TAX

MR. MALLOCK in the March number of this Review pays me an undeserved compliment which I must hasten to disclaim. In several generous references to a very modest work of mine, *The King's Revenue*, he assumes that I have made some useful analyses of both the income tax and the inhabited house duty returns, which are in point of fact well known to be copied from official returns. Particularly would so experienced a writer as Mr. Mallock desire to give credit where it is due; for the public reports do give us much more information—on the house duty, for instance—than he appears to be aware. My only merit is that these sources are known to me, and that I have used them at first hand. It is possible, and, indeed, I am inclined to think, that Somerset House might give us an ampler opportunity to judge on these matters by extending the area and contents of the annual reports.

Of the main drift of the article in question, I am glad to be able to agree with so much of it; though I think—nay, I am forced to say—that I know that I approach the subject of the income tax from a different point of view and with very different prepossessions from those of Mr. Mallock. The author's starting-point seems to be the hackneyed party one, and Mr. Lloyd George appears, as a Charles's head, in the first paragraph. If there is a region of our political field which deserves independent treatment it is that of public finance, though it has to be admitted at once that every Budget involves, even if it does not enshrine, a policy. Mr. Mallock is preoccupied with the contention that a sufficient revenue cannot be secured without a 'reform' of the tariff, and would urge his scheme of income tax, on the model of that of Pitt in 1798, as an integral portion of such a policy. I am much more interested in the question of justice in taxation, apart from the implications of a tariff, and with something of scorn for those who look to a tariff on imports for revenue, a tariff which must disregard justice in the capital matter of taxation. But I am not about to discuss tariffs. I am happy to be met even halfway by Mr. Mallock, who proposes a larger use of a direct tax like that

on income, and would accompany that by a remission of the duties on tea, drink, and tobacco, or some portion of such duties. My chief regret is that Mr. Mallock in studying Pitt seems to forget that over a hundred and eleven years have passed since that wizard's great Budget, and that what seemed adequate in his day might not be found, will not be found, sufficient for to-day.

As an economist's contribution to revenue-getting, Mr. Mallock's is decidedly interesting, both for commission and omission. He has limited his view to finding a certain number of millions more, and finds that sum by graduating the income tax from a low income—115*l.*—to the highest, shielding the lambs of the flock by reducing some indirect taxes. He has done so, it must be acknowledged, in the interests of a protectionist tariff, and probably in the pursuit of a way to avoid taxes measured by land values, such as those in the Budget. He turns to Pitt, and to graduation, more still, to extension downwards of the income tax, to be accompanied by a remission of tea, liquor, and tobacco duties, only with the ulterior object of replacing the reduced duties on tea, liquor, and tobacco by a large number of duties ranging over eatables and manufactures. That appears as one of the possibilities of an income tax, according to Mr. Mallock! I am afraid that an income tax graduated with that object will neither be fair to the poorer taxpayers, nor will its probabilities be so encouraging as the possibilities seem to some.

For, in the first place, I must acquit Mr. Mallock of the vanity of suggesting that 'the foreigner' will pay our import duties. To substitute, then, for our present duties on tea, liquor, and tobacco—duties strictly laid for revenue purposes—a graduated income tax, *plus* a tariff of general application and with a protective object and incidence, would be a departure of a most remarkable kind. To make so characteristic a tax as the income tax serve the imposer of an opposite policy would, indeed, be a triumph, and were to discover possibilities which Pitt never dreamt of. In other words, Mr. Mallock's proposal must be judged not only *per se*, but also, and in order to judge of his proposal justly, it must be considered in its setting, and as part of the system of taxation which is assumed by the author.

Here we come upon the omission of this interesting proposal. The income tax is not only to be graduated directly, but extended downwards in its scope. The present limit of exemption would be lowered from 160*l.* to 115*l.*, as I apprehend it. The compensation would be found in the remission of some taxes on tea, liquor, and tobacco. That compensation would be quite illusory; for, of course, 'if a reform of the income tax were accompanied by a reform of the tariff,' the result would be that the incidence of the new tariff, with a numerous list of duties, would be more grievous

than the abolished duties. Nay, more, as the incidence of all such indirect imposts is much heavier upon the poorer owners of income than upon the higher, that poorer income-tax payer, now introduced to the income tax and its blissful incidence for the first time, would be thrown from the frying-pan right into the fire. Had Mr. Mallock regarded his proposal in its place in a Budget this unfortunate result would have been quite plain. To this I should like to return after a closer examination of Mr. Mallock's limited proposal.

First of all, Pitt's great innovation appears to present an experience necessarily youthful. I speak not of its comparative failure at that time, which was not surprising, but of the fact that sixty-seven years of continuous experience since Peel resuscitated the tax in 1843 has left the actual value of Pitt's tax to the Treasury at a very low figure. The significance of the fact that so timid a financier as Mr. Mallock looks to Pitt's tax would seem to be that he betrays a tendency to look backward rather than forward; and to that should be added, and that gratefully, that Mr. Mallock finds it in his heart to adopt from Pitt the one remaining virtue of that famous proposal—viz. the graduation of the impost. Here I rejoice to find Mr. Mallock on common ground: the need of a graduated income tax. Of course Mr. Mallock would not contemplate such an enterprise as to graduate the income tax did he not recognise, and, indeed, approve, of the permanency of that tax; it is not to be regarded as a war tax any more, but one of the main avenues of the public revenue, from which Mr. Mallock would draw from 43,000,000*l.* to 48,000,000*l.* per annum. That, I repeat, is a matter of some significance; for has it not been very remarkable how so many men of affairs even have been in the habit of regarding the income tax, down to the days of Mr. Asquith, as a temporary imposition, or at best as a tax in reserve for emergencies? Since the day in 1874, on the other hand, when Mr. Gladstone was denied leave to abolish it, there has been no looking backward. The income tax had come to stay, and now Mr. Mallock joins the band of graduators.

Another point worth noticing is that while Mr. Mallock proposes to bring incomes averaging 115*l.* subject to income tax, the Pitt scheme of 1798 began with 60*l.* and upwards to 65*l.* at $\frac{1}{120}$th part, or one halfpenny in the pound. During the hundred and eleven years which have elapsed since Pitt's effort was initiated, Mr. Mallock appears to find that this country has made some progress: as 60*l.* to 115*l.* People who should be exempt now at 115*l.* are virtually compared to those at 60*l.* in Pitt's day—an advance of some 80 per cent. or so. As Mr. Mallock does not put this forward directly, I do not desire to press

the point; but it is, in the circumstances of the day, some comfort at least to find that by means of the income tax it is possible to show how this country has gone forward during the past century. Indeed, it is one of those means whereby it is shown how the wealth of this country has grown and is growing. It is a possibility of the income tax in which we should be glad to rejoice together.

Coming now to the main part of the article in question—that part in which Mr. Mallock laboriously, and with great skill, endeavours to show that our records prove that the income tax might be made to yield a much larger sum—I do not for a moment doubt that any student of our revenue would agree in that proposition. The Budget of 1909-10 estimated for a yield of 37,400,000*l.* Mr. Mallock estimates that on such a scheme as his 43,000,000*l.* or 48,000,000*l.* might be got! That to the taxpayers of Pitt's day would have been enough to cause them to cease from hating the Frenchman, for they yielded 6,000,000*l.* very grudgingly to Pitt, and helped to break his heart. Their nature and their habit is shared by taxpayers of our day, for, as Mr. Mallock implies, there is a large amount of income, taxable income, which is never discovered. Hitherto taxpayers among Mr. Mallock's friends have been in the habit of pointing, not without justification, to evasion as growing in direct ratio to the onerous character of a tax. That fact of experience might be pleaded as one reason why so large a quota of revenue as is now suggested should not be raised by income or any other tax, so necessitating a resort to other methods of raising a revenue, even to land duties. As to the fact that our present rate of tax might be made to yield a larger revenue, there does not seem any necessity to doubt it. Mr. Mallock has spent his strength in a very interesting attempt to estimate—it cannot be more—how much might be got out of taxpayers were the income tax graduated. His calculations I do not mean to question: I am of his opinion; and Mr. Bowley, Mr. Chiozza Money, Mr. Korn, and others, among recent writers, appear to agree with respect to this fact. It is worth reminding some readers, however, that such calculations as that made by Mr. Mallock are quite academical in character, and serve at best only as guides to a department engaged in the collection of such a tax. A constructive argument, founded on defective records of income-tax collection, eked out by reference to equally incomplete statistics of the inhabited house duty, may be the joy of a statistician like Mr. Bowley, and give an unwonted exercise to Mr. Mallock; but what may be nutritious to such hard students, accustomed to a Blue-book and biscuit fare, might not prove in administration to be quite as well suited to swell the revenue. In short, however exhilarating it is to follow Mr. Mallock, following in the

wake of the other guessers, it should be recollected that the result is not more than an estimate. That estimate does, on the other hand, lend more than a countenance to the belief, the conviction, that a large quota of the income of some people in this country remains undisclosed. Such a conclusion only confirms what is known to any person who has observed every day how easily so many people take the responsibility of making a return of income.

In Mr. Mallock's paper there is an absence of reference to present methods of collecting the tax, though that has an important bearing both upon the amount yielded by the tax and upon the graduation to which Mr. Mallock commits himself. The report of 1906, which was that of a Select Committee, and not that of a Royal Commission, shows how this was felt by the members of the Committee and by the witnesses whom they examined. No words are needed to emphasise the importance of a good system of collection; but as to graduation, a direct system of graduation such as Mr. Mallock proposes, a system which appears to me to be that to which we tend rapidly, the proceedings of that Committee are very instructive, and bear with much importance upon the proposal. Let us suppose an attempt to graduate directly, on a basis such as Pitt's, and we are met—we were met at that inquiry in 1906—by a *non possumus* from Somerset House. Sir Henry Primrose was, perhaps, scarcely earnest when he gravely professed that there was no room in Somerset House for the labourers who would be required to make such a departure from the present method of collection. That appeared at the time, and appears more so now, as a very insufficient reason why a desirable reform, and in such an important matter as taxation, should not be attempted. Since that day Mr. Asquith got the House of Commons to unite the Excise and the Customs under one Board, having its seat at the Custom House, thus vacating a portion of Somerset House. The objection taken, however, was only one form of the objection which the Board of Inland Revenue has put forward against the direct graduation of income tax. The substantial objection was, and is, that the collection of income tax is, as regards much of this revenue, done 'at the source.' Is it not obviously convenient to the Treasury, or rather to Somerset House, that by application to bankers, agents, &c., they should be able to collect large sums in income tax without the need of seeking the owner of that income? In other words, this revenue has been collected from a long past date on the principle that to get revenue is the principal thing, and that the getting of it on a just basis, and in such a way, was quite a secondary matter. There is, obviously, a tendency to succumb to a temptation such as that. Mr. Mallock may have realised that, and probably has done so; but it is obvious that his plan of graduating income tax

would involve the revolution at Somerset House which Sir Henry Primrose dreaded. I am of opinion, though, that Mr. Mallock should be encouraged to press for graduation, and that Somerset House should be required to brace itself for the change. Without minimising the importance of collection, it is submitted that to get the best yield on a just basis of charge is of greater importance. Collection at the source may be convenient, but it is one of the chief aids to concealment of income; while at the same time it causes much injustice to small-income owners, who hate applications for repayment, and necessitates a much larger staff at the repayment office than should be the case. Composite incomes of a large amount are rarely known as a whole to Somerset House; for, of course, unless the owner of such an income should be gravely over-assessed—a rare occurrence probably—he will not be called upon to, and does not as a rule, make a complete return of his income from all sources. I speak of practice, and not of the power of requiring such a complete return, now possessed by the Commissioners. The result is that the smaller man, and the employees of the State or of great companies, the thousands of clerks and annuitants whose sources of income are few and known, bear a larger share than they should. The collection at the source, plainly, should be abandoned, and a resort to direct graduation ordered. Such a graduation would, of course, require that every man should make a return of his income from all sources.

A return of income from all sources from every individual would, no doubt, be a considerable change, both for the Revenue Department as collector, and for the individual from whom the return would be demanded. Mr. Mallock accepts the situation, this implication of his proposal; nor does it seem that a valid objection has been raised against it. It cannot be ignored that the Select Committee of 1906 declined to favour this, but that was chiefly, as it seems to me, because the official evidence was against this change. Since that day the pressure at Somerset House, so far as space is concerned, has been eased very considerably. To require a return from every individual is to extend a practice which is common now in cases under Schedules D and E, those which are regarded as the omnibus and the official schedules respectively. Why should not a man who has an income derived from twenty or thirty sources be required to make a return of the whole? Again, there is not now the same acute objection to returns on account of disclosure before local commissioners of income tax, and objection might be avoided on that score by making returns returnable to officers, sworn officers only. This is one of the matters which have been robbed of their imagined terrors by familiarity; it is also a necessary corollary to a perma-

nent income tax. As to the effect on the revenue, no doubt the change in the method of collection would require careful preparation, and it might be necessary to give a year's or two years' notice before the collection at the source gave place to the assessment of individuals. Should the change prove somewhat more costly to the revenue, it should be recollected that, while that might be so in amount, it is not probable that the percentage would be greater; for the issue would be, as Mr. Mallock anticipates, the discovery of much income which now escapes the attention of the tax-collector. Apart from that opinion about hidden incomes, there is the question of the relative values of individual returns, and collection at the source, in securing revenue. That capital matter would not be put to hazard by the change, if we may trust not only our partial experience but also such an opinion as that of Mr. T. A. Coghlan, the well-known Australian expert who gave evidence to the Dilke Committee in 1906. On the whole, objection to this direct individual return and collection accordingly does not seem substantial, whether from a departmental or general standpoint, as against the admitted desirability of graduation. To impose the tax more justly, and to secure a more uniform collection, with enhanced revenue, seem to be ends which justify a resort to a reformed means of raising the tax.

When this point is arrived at we join issue inevitably with the method of dealing with income tax adopted since 1906. The methods adopted in Mr. Asquith's and Mr. Lloyd George's Budgets with regard to income tax were, necessarily, much influenced by the Dilke Committee's report. It will not be without some use if the features of the income tax as now imposed are mentioned, therefore, so as to bring out those features which show how an accommodation is secured by a powerful department. Every student of this tax who has examined it recently has not failed to express the claims of a graduated method to attention; but in 1906, as before, the official objection triumphed, and a clumsy makeshift adopted—to the greater confusion of the taxpayer. That confusion is one of the results condemning the present tax and the methods of assessment and collection; for it is of manifold importance that the taxpayer should know why and how he is taxed. At present, as in Mr. Mallock's suggestion, there is a limited sphere where income tax does not trouble—*i.e.* up to an income of 160*l.*, a limit fixed by Sir Wm. Harcourt in 1894; then we have abatements—of 160*l.* up to 400*l.*, of 150*l.* up to 500*l.*, of 120*l.* up to 600*l.*, and of 70*l.* up to 700*l.*, which, in effect, graduate the tax up to 700*l.* These abatements in present form were fixed in 1897 by Sir M. Hicks Beach (now Viscount St. Aldwyn). Ten years later we find Mr. Asquith, in 1907, making a distinction between earned and unearned income; and while the standard poundage

was a shilling, he fixed that poundage on earned incomes up to 2000*l.* at ninepence. In the Budget for 1909-10 Mr. Lloyd George secured the consent of the Commons to a further modification upon this system, an engrafting on the old stump. The discrimination between earned and unearned was carried from 2000*l.* to 3000*l.*, and three rates of poundage fixed—at 9*d.* on earned to 2000*l.*, 1*s.* on earned to 3000*l.*, and 1*s.* 2*d.* on all other incomes. Then there was also a super-tax, which would be 6*d.* in the pound upon as much of an income exceeding 5000*l.* as exceeded 3000*l.* Still more, to all whose incomes did not exceed 500*l.* an abatement (in addition to other abatements) of 10*l.* on the assessment, for each child under sixteen in a family, was provided for. No words are required to draw attention to the cumbrous character of such arrangements. The whole of that cumbrousness may be attributed to the persistent opposition of the Revenue Department to graduation. It is quite clearly seen how the effect of the arrangements, succinctly enumerated above, is to graduate the tax according to the amount and also the source of the income to be taxed. The principle of graduation is admitted, for of course the abatements are only a device adapted to a collection 'at the source.' As hinted already, is it not clear also that this cumbrous method of graduating cannot be defended except from the convenience of the official work? The Select Committee, it would appear to me, as I think must appear to Mr. Mallock, was overborne by the official evidence and the unnecessary and unjust reluctance to interfere with the supposed interest of the revenue. The end, as the beginning, of this matter would seem to be that if graduation be necessary in the interest of justice, and graduation shown, as Mr. Mallock shows, to be a probable discoverer of untaxed income, then it is time that the difficulty from the point of view of collection should be met by a resolute attempt to adapt the machinery to the task to be imposed by the Legislature. There is no adequate reason for thinking that the change, made gradually and resolutely, would be other than beneficial to the revenue, as Mr. Mallock implies. I am very glad to get his co-operation in this advocacy of a graduated income tax, which implies, as I say, a new method of assessment and collection.

So far, then, I am disposed to agree with Mr. Mallock that 'Mr. Lloyd George and his colleagues do not make the best of their own fiscal principles.' That is a criticism without much point; for, of course, not only is every Chancellor of the Exchequer much dependent on the official advice tendered to him, but there may be, and there are in practice, prudential reasons for avoiding the full and free application of the principles accepted and applied in part. This, as I have admitted, so far as direct

graduation goes, is not one of those cases in which that caution is justified. It is also true that such a graduation as this would not add a new burden upon anybody, except in those cases where a mean-spirited citizen had avoided duty at the expense of neighbours. It is, as I have said above, to the proposal as it would be found were Mr. Mallock the Chancellor of the Exchequer, that I should be disposed to demur, as bringing too little relief to those who now carry an unjust burden. Let me point out at once that I do not refer to either of his schemes for a graduated income tax. Under those it is evident, with the adjustments necessary to each step in graduating, the sacrifice required of each citizen might be made proportionate and fair. That, however, is only part of the story, as I now proceed to show.

The Budget for 1909-10 estimated for a revenue *from taxes* of over 137,000,000*l.* That anticipated from income tax as proposed was estimated at a little over 37,000,000*l.* A hundred million pounds of other revenue was required, therefore, beyond the yield of the income tax. Mr. Mallock's estimate of revenue from income tax would yield, at most, 48,000,000*l.*; and now, as expenditure for 1910-11 will be several millions more, we may still say that 100,000,000*l.* of free revenue beyond income tax, on Mr. Mallock's basis and scale, would be required. His income tax would secure a better justice to income-tax payers, but how do his suggestions affect tax-payers in relation to our taxing system as a whole? As a fiscal reform, strictly so called, I think his suggestion has some defects which are patent to all who will observe.

I will not press too hard upon that parenthetical remark of his (p. 485), already quoted, to the effect that he contemplates his reform of the income tax 'accompanied by a reform of the tariff,' for that would plunge one into the morass of the controversy out-of-doors on Mr. Chamberlain's proposals. It is, however, quite impossible to avoid it altogether, for Mr. Mallock suggests also on the same page that the tea duty should be halved and the duties on the liquors and tobacco diminished. Evidently a tender point is touched here, and the slightest pressure shows the finger mark. The crux of Mr. Mallock's proposed reform of the income tax is not the graduation, as he very properly says; for all, even Mr. Balfour, will not deny the principle of graduation a hearing, if not a blessing. The crux is the extension of the income tax to smaller incomes than 160*l.* a year. That has been done before, it is true; but in the prime matter of justice in taxation this extension downwards is of much importance, and Mr. Mallock recognises that by suggesting remissions of taxation on certain commodities. But why halve the tea duty? If the method by which Mr. Mallock would graduate the income tax be fair, why not raise

enough revenue to cover the abolition of the tea duty, with its 5,500,000*l.* yield? I am concerned with the justice of taxation, and would suggest boldly that if any would aid that cause there is need for the abolition, and not the halving, of the tea duty. The class of citizen on whom Mr. Mallock would impose the task of contributing 3,500,000*l.* to income tax has a right to larger sums in relief of the unjust taxation which it now bears, and bears because of the method, the indirect method, of raising so large a proportion of our revenue. It will be found that on our present basis of taxation a man earning 1*l.* a week, or 52*l.* per annum, pays about 11 per cent. in taxes, a man with an income of about 500*l.* pays 7½ per cent., and another with an income of about 2000*l.* some 5 to 6 per cent. of that income. That is the effect, not of income tax, even on our present basis, to any appreciable degree, but of the taxes laid upon commodities, which tax the citizen on his consumption, on his need, and not according to his means. To these people, whose incomes range downwards from 160*l.* to the vanishing point, Mr. Mallock comes and offers the reform of entrance, for a considerable number of them, to the rank of income-tax payers in exchange for a halved tea duty and remissions on 'beer and bacca.' It is certain that much more than the whole of the tea duty would be required to adjust the incidence of taxation according to justice. But Mr. Mallock offers a reduction of the duties on liquor and tobacco!

Here I confess that I tremble before him. My principle would carry me triumphantly to more than the diminution of the liquor duties and that on tobacco, were I to regard taxation only. I confess it freely. I am of opinion that a tax on a commodity tends to impede the sale, whether that be laid on an import, export, or inland production, and have felt somewhat surprised of late years to hear some suggest a tax as a means of helping and extending trade and work. With regard to the tax, it is always legitimate to ask if it will assist or restrict a sale; and when applied to liquor or tobacco it may be asked if the taxes do or do not tend to restrict consumption. Does Mr. Mallock desire to promote the sale of liquors and tobacco, I wonder? To reduce the taxation of these commodities would, as I think, tend to the increased use of intoxicating liquors, to the increased use of tobacco. Is that from a statesman's point of view, from a social point of view, from a national point of view, an object for which we should work? There can be no question that taxes on these commodities are now much heavier than we have known them, but it is not without solid reason that it has been pointed out how every citizen can avoid every one of these duties, every penny of the taxation thus imposed, without being deprived of a necessary article of food. I am trembling, as confessed, as I venture to

suggest that Mr. Mallock, in offering to diminish the taxation of liquor and tobacco, is offering to aid a taxpayer well able to defend himself. Of course there is not anything to be said in favour of the form of the tax on liquor or on tobacco, any more than for similar imposts on other commodities; but from a larger point of view it is obvious that, so far as taxation goes, they may be evaded, and not without advantage to very many, while many who do not defend the form of the tax point to the discouragement of consumption as a thing not to be regretted here. If, then, we omit any reference to the diminution of the duty on liquor and on tobacco, which cannot be regarded as a *quid pro quo* when income tax is imposed on people with incomes below 3*l.* a week, then the remission proposed consists only of one-half of the tea duty, or considerably less than the income tax to be imposed on Mr. Mallock's higher scale, which would be required in the present state of expenditure.

In my attempt to follow the 'fiscal possibilities' of this suggestion by Mr. Mallock I seem to come upon fiscal impossibilities. Instead of making a graduated income tax more acceptable because 'accompanied by a reform of the tariff,' it seems to me that, instead of doing things by halves, the just corollary of an imposition of income tax on small incomes would be relief from the whole of the tea duty as a contribution toward a just incidence of the public taxes. Let it be observed, further, that I have not said a word yet of the suggestion implied in the phrase 'reform of the tariff' in this connexion. If the remission of the tea duty is an insufficient compensation to the owners of small incomes (and liquor and tobacco duties should not count), what shall be said when, instead of duties on tea, it is proposed to 'supply the Chancellor of the Exchequer with a surplus' by imposing duties on milk, cheese, corn, and manufactures imported into this country? If injustice must be done, and is done, by so much as taxes on commodities now dutiable disregard the ability of the taxpayer to pay, and the due proportion of sacrifice, then the imposition of such new duties, whether they supply the Chancellor of the Exchequer with a surplus or not, would in direct proportion aggravate the injustice done already to the poorer taxpayers. That is an inevitable result of such duties from a fiscal and financial point of view. It should be recollected that I am not discussing our trade relations, but our own fiscal laws, methods, and needs, as related to a reformed and graduated income tax. I hope, then, that one of the possibilities of such a reformed income tax would not be to add to the quota of revenue derived from duties on commodities, for such an addition must work mischief, and the reform would become the instrument of mischief. Most of those who have advocated the graduation of

income tax have done so because it was quite apparent that a larger sum might be got justly in that manner, as Mr. Mallock has now shown, and that in consequence it might be possible to reduce the quota of revenue raised in the price of goods. There can be no hesitation in asserting that such a reduction of the quota of revenue drawn from the poorer taxpayer has been due for a long time.

I am sure that Mr. Mallock has rendered good service in presenting his scheme for graduating the income tax directly, instead of the clumsy and involved method which is now adopted. He has rendered service, perhaps, of a different kind from that which he intended at the first. He assures every 'timid Conservative' that there is nothing in the graduation of the income tax to which anybody need object; for of course, though Mr. Mallock desires to raise (say) 11,000,000*l.* more by this means, he is only preparing the way for every taxpayer to do his duty in a manly way. Nor does he propose to give to reformed and graduated income tax a retrospective action with a view to recovering the sums by which the quotas of past days were less than many should have paid were the tax laid more directly and scientifically. A future increase to the revenue of 11,000,000*l.* annually, that is one of the possibilities of a graduated tax, according to Mr. Mallock. He has a hint in his last paragraph that should 'other social problems' be raised a further analysis of his estimates of income tax would be required. I am not sure that I apprehend his meaning, nor how far his suggestion of the remission and imposition of other taxes or duties may be involved in these 'other social problems.' He betrays a consciousness that his treatment of the income tax is wanting in breadth, and I hope I have said something which will suggest that the possibilities of which he speaks are not so many, nor of the kind which he anticipates. As he shows a wise discretion in avoiding a direct treatment of his subject from a 'tariff reform,' or protectionist, point of view, so also I desire to deal with his stimulating paper from a fiscal point of view only. In doing that, however, it has been quite impossible to avoid the very setting of his paper; he has framed it like a financial picture of fiscal reform inverted. Possibilities of income tax are many indeed, but who save an ingenious man would have sought for an opportunity to advocate more indirect taxes by the graduation of the income tax? The possibilities in that direction are barred by the angel of justice. No addition to our taxes on commodities can pass muster when weighed carefully in the balance; at present there is injustice done fiscally by every item on the tariff; every item added will heap up more injustice inevitably!

Of course as I say this I am aware that the whole question of the incidence, the true incidence, of taxes is raised. It is raised

quite as fairly and surely by Mr. Mallock's graduated income tax, but there we should agree respecting the incidence of the burden. The article on the 'possibilities' of the income tax does not afford us any clue to the opinion of the ingenious author upon the incidence of the other taxes, except that by remitting the tea duty and the liquor and tobacco duties he suggests that in those cases the consumers, especially the poorer taxpayers, would find relief by such a partial remission as he proposes. If so, and the possibilities of an income tax graduated to 2*s.* in the pound included a supplementary list of duties on foodstuffs and manufactures, then it is to be feared that the poor taxpayer would have to bear his share of those duties, the whole of the duty on his consumption, and more than his nominal share, for of course he would pay a profit on the duty imposed upon the consumed articles. That is a 'possibility' of a reformed and graduated income tax which should be avoided at any cost. My own position, I think, is clear. I should join with Mr. Mallock in graduating the income tax, in making that tax, now that it is recognised as a permanent and a principal source of revenue, more just in its incidence and more thorough in its collection. It is to be hoped that, apart from any of the 'possibilities' at which Mr. Mallock hints not obscurely, he will continue to co-operate with those who would press the Chancellor of the Exchequer to overcome the resistance of his principal revenue officers to such a graduation as he proposes, a graduation which at once would make the tax more equitable and more fruitful. But with respect to the hinted possibilities beyond the income tax itself, I regard them as impossibilities for the most part, unless the equity which would attend a graduated income tax is to be disregarded utterly. It is, as I think, demonstrable that in reforming our fiscal system for fiscal purposes care should be had that the injustice of the past shall not be repeated and aggravated by indirect methods of charge. It should be impossible to attempt anything of the kind, for of course experience should prove of some guidance even to the most zealous of politicians. Fiscal economy would regard, as I think, the 'possibilities' of tariff changes as among impossibilities, and the graduation of an income tax directly not only as possible but desirable and urgent in our present situation.

Happily, that which Mr. Mallock would recommend by association with Pitt's great name is the graduation of the income tax and nothing else from the Budget of 1798. Pitt was under the necessity of providing for a war, but the graduation of the tax is a principle which should commend itself all the more in profoundest peace. Pitt's tax was based on the idea that 10 per cent. of the income should be the standard, all the other rates of charge being brought into relation with that imposed on incomes from

200*l.* and upwards. Our expenditure at this moment is very high relatively, but the poundage does not exceed fourteenpence even for unearned income, nor does that become payable fully until incomes pass 700*l.* This direct graduation which Mr. Mallock now joins in commending, and I hope and believe, without an eye to anything that may be done to secure the rest of the revenue, will make the yield of the income tax better in every way. It is to be hoped that the wall of opposition to the reform may be dismantled before long.

Before I close my remarks, I may be allowed to call Mr. Mallock's attention to the fact that a committee of the British Association for the Advancement of Science has been formed to conduct an inquiry into 'the amount and distribution of income (other than wages) below the income-tax exemption limit in the United Kingdom.' Professor E. Cannon will be Chairman and Mr. A. L. Bowley Secretary, while Professor Edgeworth, Professor Lees-Smith, M.P., Dr. W. R. Scott, and Mr. W. G. S. Adams will also be upon the panel. Already this committee has sent out a circular to employers seeking certain information, which will be regarded as confidential. Unless Mr. Mallock's attention has been drawn to this, he will be glad to find that others are giving their minds to the questions which he placed before the readers of this Review in March. Even when all such estimates have been made as the data will permit, the value of income tax will be dependent largely on practice; and the possibilities of the tax I trust may never be found to include a further pinching of the poor.

W. M. J. Williams.

'QUARE THINGS'

I HAVE sometimes heard the older inhabitants of Bogland—once a very primitive spot—make dim and mysterious allusions to the 'triminjous quare things' that used to go on in the country in the now far-distant days of their youth, but to what kind of uncanny doings these remarks referred I was always in doubt, till one of my neighbours chancing to say to me that 'there were stories in th' ould days which, bedad, ye'd nearly not b'lave, only for them that tould ye, an' ye'd know they wouldn't ask to desave,' my curiosity was aroused, and I asked him to tell me what the nature of these stories might be. He replied that in all these now nearly discredited tales of yore—supernatural, of course—a very prominent figure was the Banshee, that was said to be 'follyin' after a many families, an' 'ud be heard a-cryin' an' lamintin' out through the country if death was a-comin' to them—an' I'll tell ye,' said he, 'there was the good people too, often ye'd hear spake o' them, that 'ud be goin' in great gangs here an' there so a body 'ud be downright afeard to g'out over the hills after duskus, for 'fraid what might be to be met.'

Indeed, my friend continued, that veteran, Francie Maguire, was known to have met a numerous party of these self-same good folk, 'an' him ridin' home the road of an evenin', an' the' came crowdin' an' pressin' round, humbuggin' an' funnin' him, so he couldn't get from the place at all.' At last, when they had amused themselves sufficiently at Francie's expense, one of the jesters took the mare by the head and led her away, telling Francie to go off home as quickly as he could. Francie's own enjoyment of the affair seemed to have been questionable, for my friend added: 'I'll hould ye he niver looked back, nor turned round after—Och now, he'd be very apt to mind that night well.' Then most people were familiar—probably I was too—with the story—a really well-authenticated tale—told by Charlie Rourke in the old days, of the blood-curdling groans and cries that had been heard to come from the group of ancient willow-trees on Delany's farm when one of their number was felled by heedless gossons. 'An' after not a livin' sowl 'ud go near nor touch them trees wid a

forty-foot pole, for they said the ould people that was dead an' gone an' had them trees planted was mad wid any man that should touch them, an' the lamint they made was a terror.'

Charlie was reputed to have been 'a very nice-discoorsed man, an' a fine-eddicated man, who could pick the stars out o' the sky for eddication.' And, more important still, 'he was a man of truth for sure—he'd tell the lie no more nor his Riv'rince himself, so,' said my friend in a puzzled tone. 'I dunno—but,' he commented regretfully, 'hardly a thing 'ud fritten the youngsters at the prisint time that I'd know. Mostly the'd only give a laugh out in your face, if ye'd spake to them that ye'd meet the good people, an' ghosteses, an' sich.'

In spite, however, of this wave of modern scepticism which has swept over the country, there is still to be found here and there a lingering traditionary idea of that most mysterious personality, the Banshee. It is, alas! a very conventional idea—'a woman wid the white sheet wrop' round her, an' over the head,' who, according to popular belief, 'did be follyin' constant after' different families of ancient and respectable lineage in Bogland.

People said that she had even been met by old Dinny Dolan, 'a great night-walker,' and moreover 'an unda'nted sojer,' and that, coming upon her unexpectedly by night in a neighbour's field, he took her to be Mary McGovern's white thief-cow, in the bright moonlight, and addressed her in the most familiar terms as 'me damsel,' warning her that she was a trespasser, and would soon be put out of that. To this shocking piece of irreverence she vouchsafed no reply, and then, as she advanced and passed by not a stone's throw from him, Dinny saw that not a bit was it Mary's cow, but a female form; and he said, though he felt no fear, that 'a kind of a hate' came over him afterwards, which led him and the people in general to the natural conclusion that this gleaming white apparition was no other than the redoubtable Banshee herself.

On inquiry Dinny seemed to be the only person who had ever been favoured with a sight of the Banshee, but many others had heard her lamentable wailing, at the sound of which your heart would 'lep up widin you, an' the could sweat o' fear would break out over you:'

It was, indeed, most rash and foolish curiosity that would make anyone desirous of hearing the Banshee: 'Jewel, ye might like to hear tell o' the Banshee, an' you a-settin' there on the creepy, snug an' warm, along wid the company; but, Machree, ye'd not like hear the sound of it, I'll warrant ye, an' you to be yer lone, 'way out in the disolate night.' That the Banshee used to wail round the houses of the O'Rourkes, near the great lonely Aughavilla bog—a remote spot which the least imaginative could well believe to be haunted by any lonely and restless spirit—was known to all who

dwelt in that region; and had not Mrs. Sheridan herself, crossing the bog at nightfall with her little Biddy, long years ago, heard the dismal lament 'as plain'? She had gone to the house of old Pat Giblin—'tis a ruin now, standing beside the clump of fir trees far away across the bog—for Pat had been in the service of the O'Rourkes for many and many a year, and he was lying sick. She staid there awhile with 'Liza O'Rourke, who was nursing old Pat. 'And,' said Mrs. Sheridan, 'whin I came out on the door for to go 'way home the duskus was fallin' over the bog an' the wood, an' it got very dark-lookin'.

'It was a lonesome an' a backward kind of a place where that house stood the whole time,' she continued, 'what wid the rustle o' the wind that ye'd hear like the runnin' wather through the thick branches a-top o' the dale-trees, an' the big wide stretch o' the bog, wid niver a cut nor a bank nor a clamp o' turf on it thim times, only just the heather an' the tussocks o' the yaller grass spread out there forenint the door. Not a breath o' wind was stirrin', an' Biddy was prattlin' away that cheerful, an' had a-hoult o' me by the hand, an' I wid no fear, nor thought of any—why would I?—an' we took over into the bog. On the suddint didn't I hear the mournfullest cryin' to begin round about and through the bog—'twas near to us, an' thin 'twas far, an' thin it 'ud go dyin' away by the fir wood, an' ye'd think 'twas climbin' up the slope o' that hill beyant it was. Ye niver heard what 'ud bate it for lonesomeness. An' sartain sure ye'd have no kind of a misdoubt in your own head that 'twas a woman in the tarriblest sorrow was just convaynient to you cryin' an' cryin' like as if her heart was broke. 'Twas the piercingest dreadfullest cry—only the wan note "A-wae, wae, wae," not a more, an' it wint away through the air, over the bushes, an' seemingly off back to the house.

'An' the child Biddy (she was up to tin year old) heard it on the minute wid meself, too, for "Arrah, mother," séz she, an' pullt at me by the hand so I'd stand an' look round, "what's that? Bide a bit; don't ye hear the body a-cryin'? Won't we see who 'tis, at all at all?" "Whisht, whisht, I'll not stop," sez I, for the heart widin me gave the odjousest lep, an' seemed like to quit the baitin' entirely, so I couldn't spake nor nearly move, wid the turn that lonesome sound gave me. An' I just took the shivers over me like the could wather. So the lamintin' continued there a while, as we legged it away home, I wid Biddy as tight be the hand, an' thin it just died away gradial. I'll warrant ye I thought it the long life-time till we'd be in the house agen to Pat an' the childer, for I was in such dread, just in a flutter o' fear. Pat was askin' what was on me, seein' the way I was wid the frit, an' funnin' me that I'd be so aisy put about. For, mind ye, I niver took it to be the

Banshee, only I couldn't know what it might be that 'ud give me that quare kind of a feelin' over me.

'Whin I'd mind the sound of it an' I in me bed I'd take a shiver, an' the heart niver got settled down widin me that night, an' it after leppin' so.

'The' tould me in the mornin' that ould Pat Giblin had departed very sudden an' unexpicted the evenin' afore, an' us after lavin' the house. So wasn't he just in the departin' whin the cryin' began? Thin I knew right well 'twas the Banshee we heard, for ne'er a livin' soul barrin' the two of us was out in the disolation o' the bog that night, an' what sort of a woman would she be anyways that 'ud be strayin' out there in the duskus, cryin' an' lamintin' herself up an' down? For 'twasn't in the one place ye'd hear it, but the sound wint thravellin' round an' about the bog. Och, 'twas no mortial lamint—I'd know that full well, an' the Rourkes knew it, more be token, for there was them an' a many others that heard the cry that night.

'But glory be to God that I seen naught—I'd think I'd niver over live to see the Banshee! Begor, I got such a frit wid her that for all I should go back over the bog to the corp-house afore the buryin' to see the corp laid out (an' 'twas laid out beautiful, the' said, wid candles, an' all) I wouldn't set foot in the place agen, nor sence 'ud take the pad way over the bog after night, no not for a mine of goold an' silver if ye'd give it to me.

'Troth I'd nearly think I'd lose me wits an' me to hear the Banshee to lamint agen!' concluded Mrs. Sheridan, whose experience on that memorable evening had very evidently made a deep and painful impression upon her.

But these are tales of long ago, and nowadays the Banshee and the Good People seem to have vanished from Bogland—put to flight, no doubt, by the advent of those modern products, the moonlighter and the nocturnal cattle-driver, arch-enemies of all poetry and romance, at whose hands the traditionary shadows of former days would receive but scant consideration and respect.

No, for such as them, with the halo of romance surrounding their phantom figures, there will soon now be no place remaining. They can, then, but comfort themselves with the thought that even the reputed sceptic of to-day acknowledges their existence in the past, and allows that, however prosaic and matter-of-fact the present of Bogland may be, yet its weird and stormy past witnessed many—what are still called—quare things.

M. Godley.

SIDE-LIGHTS ON THE STORY OF THE SUEZ CANAL

Being aware of my intimate connection with Egypt, a young friend, in telling me recently of the result of a competition in which prizes were awarded for the best list of the world's engineering triumphs, laid stress on the fact that nearly all the lists cited both the Suez Canal and the Assouan Dam. I rejoined that the Nile Dam, at the head of the First Cataract, was indeed an engineering wonder, but that the Suez Canal, which, after all, is but an artificial strait, was *not* such a very marvellous feat. For, I continued, when one thinks of the difficulties in the path of the engineers entrusted with the cutting of the Panama Canal, the dredging and excavating of between ninety and a hundred million cubic yards of sand, mud, etc., necessary for the making of the Suez Canal, seems but child's play. Between the Mediterranean and the Red Sea there is no appreciable difference of sea-level, nor were tidal locks required at either end; there were no lofty mountains or deep valleys in the Isthmus of Suez, and consequently no 'flights of locks' necessary; in a word, the engineers of the Suez Canal had no Chagres River problem to solve, involving provision against seasonal floods and swollen tributary streams, no eight-mile Culebra Cut to persevere with, no Gatun Dam to construct, and no upheavals by earthquake to dread and guard against.

The Suez Canal I do not look upon so much as being an engineering feat as in the light of a colossal triumph over prejudice; a victory over political animus, groundless financial fearsomeness, and opinionated pig-headedness—conquests obtained by the dogged, unflagging perseverance of one man, Ferdinand de Lesseps.

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It may be of interest, now that the draft of a new Suez Canal Convention has caused such controversy in Cairo, to recall certain little-remembered incidents and coincidences in the history of the original concession, as well as some of the piquant side-lights

which have been thrown from time to time on the story of the great maritime highway.

To begin with, it is a curious exemplification of how often great undertakings depend on insignificant and apparently wholly irrelevant happenings that, had not De Lesseps been sent to Egypt as *élève-consul;* had he not arrived from Tunis on the sailing-vessel *Diogène*, and been placed in quarantine at Alexandria; had not his chief, M. Mimaut, lent him, to lighten the tedium of the period of detention, the memoirs of Lepère, the engineer who had in 1799 reported to Napoleon on the feasibility of a canal across the Isthmus; and, above all, had not De Lesseps been *a good horseman*, the Suez Canal, most probably, would not be to-day the great connecting-link between Europe and the Far East. As regards my first contention, we have De Lesseps' own frank acknowledgment in his journal, where he writes, 'Monsieur Mimaut gave me a first notion of the Canal between the two seas, a subject of which up to that date (1831) I had not the faintest knowledge.' And to the value of his equestrian proficiency the following narrative of the obtainment of the original concession bears witness.

In or about the year 1805, De Lesseps' grandfather, then French representative in Egypt, was requested by Bonaparte and Prince Talleyrand to indicate a man capable of substituting in Egypt orderly government for the anarchical rule of the Mamelukes. He had selected (the then Colonel) Mehemet Ali, and so was instrumental in first bringing him to notice. Thus, when De Lesseps, the grandson, came to Egypt in 1831, Mehemet Ali (who had become Viceroy) very naturally treated him with favour, and so it came about that Ferdinand de Lesseps taught the Viceroy's youngest son, Saïd, who was then abnormally stout, to ride. This was how his equitation was first of use to him, and the second occasion occurred twenty years later, when De Lesseps came on a private visit to Egypt, ostensibly to congratulate his former pupil, Saïd, on his accession to the Viceroyalty, but really with the fervent hope of obtaining permission to start cutting the Maritime Canal. For De Lesseps had now retired from diplomacy, and was free to devote all his time to the enterprise he had pondered over since 1831.

It so happened that when De Lesseps arrived, Saïd Pasha, the new Viceroy, was exercising his army in the Libyan desert. So when (15th of November 1854) De Lesseps preferred his petition, the Viceroy very naturally called together his generals and consulted them as to the project of a canal. Now, warriors in those days (and perhaps in these regenerate days also), and particularly in Eastern countries, held in higher estimation a man who could sit a horse than a mere learned bookworm, and, very fortunately,

when summoned by the Viceroy, De Lesseps *rode* into the camp.

He thus describes the scene: 'They (the generals) stared at me and, looking as if they thought their master's friend, *whom they had just seen put his horse over a wall*, could not be otherwise than right, they raised their hands to their heads in sign of assent.'

I may perhaps fittingly here draw attention to the curious reason which induced De Lesseps to cast the all-important die, and broach the subject of the Canal to the Viceroy, on the *15th of November*, a date which was twice again in the history of the undertaking to prove propitious. His own words, taken from a private letter written on the same day, are as follows:

> At five o'clock in the morning the camp began to be full of life, a chilliness proclaimed the sunrise, and a few rays of light already tinted the horizon, when suddenly there appeared to my left, where the sky was threatening and cloudy, a very brilliant rainbow stretching from east to west. I confess that my heart beat violently, and that I was obliged to put a rein on my imagination, which was tempted to see in this sign of covenant spoken of in the Scriptures the presage of the true union between the Western and the Eastern world.

A fortnight later, on the 30th of November 1854, Saïd Pasha signed the firman granting 'to his friend Monsieur Ferdinand de Lesseps the exclusive power of founding and managing a company for the piercing of the Isthmus of Suez'; and this concession 'his friend,' later, ungratefully turned into a bond, nor did he remember Portia's admonition to Shylock:

> Shed thou no blood, nor cut thou less nor more,
> But just a pound of flesh.

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The scene changes, and our narrative takes us from the Libyan desert, first to the castle-prison of Ham, and then to the capital of Spain. Having shown how De Lesseps came to possess the friendship of the Viceroy Saïd, through having given him riding lessons when a boy, it may be convenient at this juncture to set forth how De Lesseps came to enjoy high favour at the Imperial Court of France; for undoubtedly the Canal might never have been successfully completed without Napoleon the Third's strong backing, and even this useful support might have become, in certain critical crises, somewhat lukewarm, had not the Empress Eugénie also favoured De Lesseps and his project. And it is interesting to note, moreover, the widely different motives which predisposed these two exalted personages in De Lesseps' favour.

In 1840, Louis Napoleon, son of the King of Holland and Hortense de Beauharnais, and nephew of the great Napoleon,

made a futile descent upon France near Boulogne, was captured, and imprisoned in the ancient castle of Ham, on the River Somme. During his six years' captivity, borne with exemplary patience, the Prince studied much and wrote many treatises, and in 1842 he published a scheme for cutting through the Isthmus of Panama. In this essay, which was written in English, the following passage occurs :

> Central America can only hope to emerge from its languor by following the example of the United States, that is to say, by borrowing hands and capital from Europe. War and commerce have civilised the world. Commerce is still following up its conquests. Let us open a new route for it. Let us bring Europe closer to the peoples of Oceania and Australia, and enable the latter to share in the blessings of Christianity and civilisation.

As a result of this pamphlet, the Prince, while still a prisoner, received from the Nicaraguan Minister for Foreign Affairs a letter which officially conferred upon him ' all the powers necessary for organising a company in Europe,' and which informed him that the Government of Nicaragua had determined that the new route, if made, should be named the *Canale Napoleone*. It is clear therefore that, when young, Napoleon the Third had given such close attention to the subject of the shortening of routes for navigation as to predispose and stimulate him in favour of De Lesseps, particularly as much of the Prince's reasoning when advocating the Panama scheme in 1842 applied equally well to the Suez project of 1854.

On the 25th of May 1846 the Prince escaped from Ham by disguising himself, with the aid of a faithful friend and fellow-prisoner, as a workman, and walking out of the gates of the Castle with a plank over his shoulder. The present writer still sometimes sees in the cemetery of Père Lachaise an unpretending tombstone under which repose the mortal remains of the widow of one of Louis Napoleon's faithful adherents of that time. The gravestone bears no name, only this reference to Victor Hugo's well-known work :

Histoire d'un Crime

CHAPITRE XV., FIN

Comment on sortit de Ham

In 1848 Ferdinand de Lesseps represented France at the Court of Spain, and while in Madrid he was able, in virtue of his diplomatic position and of his friendship with the powerful Marshal Narvaez, then Spanish Prime Minister, to intervene successfully on behalf of thirteen officers who had been sentenced to death for mutiny at Valencia, and for whose lives Mademoiselle

Eugénie de Montijo, probably at the instigation of her mother, then Grand Mistress at the Spanish Court, had begged him to intercede. Her distant cousinship with De Lesseps may have emboldened the young lady to seek him out, for there was a family connection, De Lesseps' mother being aunt to her mother, the Countess de Montijo. Whether De Lesseps was or was not aware of this kinship seems open to question. In writing of the incident, he only says in his diary:

> I was told that Mlle. de Montijo, accompanied by her governess, was waiting to see me in the drawing-room, in order to speak to me on a very pressing and important matter—thirteen officers, belonging to the leading families of the Court, having been sentenced to death; [and later, after having seen the Prime Minister, he writes] Whereupon Narvaez, seeing how determined I was, shook me vigorously by the hand, and said to me in Spanish, 'You may be off, Ferdinand, with these men's heads in your pocket.'

Mlle. de Montijo, on the 30th of January 1853, became the Empress Eugénie, and so in after-years was in a position, as the wife of Napoleon the Third, amply to repay De Lesseps for the service he had rendered her as a girl in Madrid in 1848. That she did so repay him is certain, for at a board meeting of the Canal Company held in 1859 De Lesseps said, 'The Empress has been our guardian angel, and would be for the union of the two seas what Isabella the Catholic was for the discovery of America.' De Lesseps also chose in that same year the 15th of November, the feast of Saint Eugénie, for the first general meeting of the new company's shareholders.

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Throughout this paper I have endeavoured to give Monsieur de Lesseps all possible credit for his indomitable pluck and perseverance, but it must not be forgotten that, after all, he only carried out an old-world project. The idea of the joining together of the Midland and Red Seas by a navigable channel was familiar to Sesostris, Alexander, Cæsar, Amrou, and Napoleon, each in turn having entertained it. Furthermore, water communication between the two seas, though partly by way of the Nile, had before actually existed, once about 1330 B.C.; again in 620 B.C., under Necho, the Pharaoh mentioned in the Bible, though then the Mediterranean was known as 'the very green,' and not as the 'blue' Midland Sea; and yet again, from about 300 B.C. to perhaps 150 A.D., and finally, after the Hegira, from 640 A.D. to 767 A.D.

Having thus given the ancients their due, we will return to modern times. At first De Lesseps had enough to do in satisfying prospective shareholders as to the practicability of the scheme, but, brushing aside futile criticisms and a mass of prejudiced *opinions*, it seems to me that the only serious objection to the

project was that the sand walls of the Canal would be rapidly undermined by the action of the wash from vessels in transit. But this objection De Lesseps always answered by telling the story of his experiences at seaside places, where, though *dry* sand crumbled under his weight, *wet* sand would bear his body without serious depression.

From 1854 to 1858 De Lesseps' chief energies were expended in trying to obtain the adhesion of the Suzerain Power. This was a difficult, nay, almost hopeless, task, as besides the natural inclination of the Turk not to take action of any sort, England's powerful influence with the Porte was actively used against Lesseps. For Lord Palmerston, then autocrat in Downing Street, strongly opposed the cutting of the Suez Canal, and delayed it as long as he could. Looking at the matter purely with reference to the commerce of Europe, he held that any great work which would shorten considerably the voyage to India[1] must in the long run be advantageous to *all* nations trading by sea with Asia. Personally, I think there is much to be said for this view, and I believe that the volume of British commerce will yearly decline as other Maritime Powers gradually absorb their share of what before the Canal route was opened was carried almost entirely in British bottoms. As regards the political results, Lord Palmerston predicted—and events have fully justified this prophecy—that a practicable waterway between the Mediterranean and the Red Sea would irresistibly draw England into a more direct interference in Egypt, and he therefore considered the Canal undesirable, as England would reap no advantage in annexing territory in that part of the world.

Yet England had not always been opposed to the idea, for M. Linant de Bellefonds, the French engineer whose plans for the Canal were ultimately adopted, has borne testimony that—

> in 1840 England and the East India Company wished for a Canal and that in 1841 I signed a contract to that effect with the Peninsular and Oriental Company, and in 1842 the project was accepted by the Indian Government with enthusiasm.

It was not until the 25th of April 1859 that the first spadeful of sand was thrown up, and then Turkey ordered the work to stop at once; even by 1863, when Saïd Pasha died and Ismail Pasha became Viceroy, not one-fourth of the work to be done had been executed. On Ismail's accession the work was again stayed, the reason being as follows:

The Egyptian Government in 1856 undertook to provide De Lesseps with 80 per cent. of the labour required. This meant

[1] The Suez Canal reduces the distance between Western Europe and India from 11,379 to 7628 miles.

that 40,000 of the Delta peasantry were always away from their fields—20,000 actually on the excavation works, 10,000 on their way to the Isthmus, and 10,000, *minus* the number who had succumbed to the terrible sufferings and privations entailed by this forced-labour system, on their way back to their village homes. It is stated by one writer that, owing to the climatic conditions, the terribly hard work, and the meagre rations supplied, the poor patient natives 'died like sheep.' Be that as it may, Ismail's first act was to refuse to continue this *corvée* system (ultimately he had to pay £1,520,000 compensation for the withdrawal of the native labour), and, whatever his motives, the Viceroy was undoubtedly right in declining to continue the *corvée*, for the forced-labour system was only justifiable in the Delta for the maintenance in good order of the dykes and canals which secure the irrigation on which the prosperity of Egypt so entirely depends. The dearth of labour caused by the Viceroy's action was not, however, without its advantages, for it was then that Messrs. Lavalley & Lecointe rose to the occasion and devised the marvellous dredgers with which the remaining work—two-thirds of the whole—was afterwards completed in two years.

In 1869, within two days of the lucky 15th of November, 'la fête de Sainte Eugénie,' the Suez Canal was opened with great pomp, the first vessel being the Imperial yacht *l'Aigle*, with the Canal's guardian angel, the Empress Eugénie, on board, accompanied by De Lesseps and his two sons. And, curiously enough, the many initial delays, extending over several years, made for the ultimate commercial success of the Canal, for had it been completed in the early, instead of during the late, 'sixties, it would have been a failure, as very few vessels would have used it. Sailing vessels, for which the Canal was primarily made, would have preferred the free seaway round by the Cape to the tedious and difficult navigation through the Canal and the narrow Red Sea; and ocean-going steamers were but in their infancy, and only received the great impetus, which practically changed the fundamental conditions of navigation, from the invention of compound engines,[2] whereby an enormous saving of coal was effected, as compared with the former prohibitive consumption by the ordinary commercial steamers.

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At first the traffic through the Canal was insignificant, but, as it increased, it became important in the interests of shipping to determine whether the words *tonneau de capacité*, in Article 17 of the Concession, meant *gross* or *net* tonnage. Article 17 states

[2] Compound engines were first used in the Royal Navy in 1867.

clearly that the Canal Company could not charge a toll of more than '10 francs par tonneau de capacité.'

The battle royal between the Powers and the Company lasted two years, the Powers, led by England (who was at last beginning to take an interest in the Canal affairs), contending that it should be *net* tonnage, but, if *gross* tonnage was the correct translation, that then the toll of 10 francs should be at once reduced by at least one-third. Ultimately (18th of November, 1873), the Powers agreed to admit the toll of 10 francs only on the *net* tonnage, but, in order to help the Company, they promised to pay a surtax of 3 francs a ton until the net tonnage of vessels using the Canal should amount to 2,600,000 tons. But the twelve Powers had reckoned without their host, for De Lesseps, holding the decision to be an usurpation of the Company's rights, flouted Europe by declining to put the agreement into force. And, as he would not give way, it became necessary to use compulsion, and finally the Sultan, urged by the Powers, instructed the Khedive to employ *tous les moyens et toute la force nécessaires* to carry out the decision from the exact date (29th of April, 1874) on which it had been agreed that it should come into force. So two Egyptian war-ships were stationed at the entrances, and bodies of cavalry and infantry and five thousand Bedouins—as well as the necessary corps of telegraphists—made a demonstration along the Canal, and then, and only then, did M. de Lesseps capitulate.

In my opinion the recollection of this stubborn fight had its due influence in determining the later action of the British Government when they purchased the Khedive's shares, 'lest,' as the Sultan was informed, 'they might fall into hands which would not be for the interest of either Turkey or Great Britain.'

This victory, in so far as England was concerned, did not bring with it much sense of rejoicing and elation, but rather a feeling that some action should be taken to prevent a recurrence of a similarly embarrassing dilemma. Lord Derby's first move in this direction was to sound the French Ambassador in London on the subject of united action by the Powers with a view to purchasing the Canal. The conversation was duly reported to Paris, but the French Foreign Minister, the Duc Decazes, expressed himself as opposed to the idea. Nothing daunted, the next move, made privately through Baron Rothschild, was to ascertain whether De Lesseps himself would entertain an offer for the purchase of the Canal Company. He, however, declined absolutely to contemplate the selling of the Company so long as he remained its Chairman. Finally, the proposal was aired on the 5th of June in the House of Lords, and again on the 26th of June, 1874, in the House of Commons, but nothing came of it. Yet I am of opinion that all these *ballons d'essai*, which showed the direction of the

wind at that time in Downing Street, materially help to explain why, when the chance of obtaining a line of shares presented itself, the opportunity was promptly seized, and no red-tape dilly-dallying occurred. When the Canal scheme was first mooted, England, as has been shown, opposed it; likewise, when De Lesseps found himself in difficulties, financial and other, England increased rather than lightened his burdens; but now, at the eleventh hour, she was waking up, and was not only ready to recognise 'the accomplished fact,' but was anxious to repair her former errors. England had not even 'wrought one hour,' yet she wished to be 'made equal unto them who had borne the burden and heat of the day.' And, by a stroke of good fortune, she obtained her wish; but, as the story is complicated as well as interesting, I will tell it in a separate paragraph.

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Once again the objects in our kaleidoscope change positions and reflect new forms, the fateful date of 1854 and 1859—the 15th of November—recurring once again, though, it is true, the year is nearer to our own times, and we have new characters in the play. And once again we may observe how great events oft-times depend on little causes, for here we have a great national advantage as the outcome of a simple invitation to a Mr. Frederick Greenwood to dine quietly one Sunday evening with a Mr. Oppenheim.

In September 1875 one-half of the service of the interest of the Ottoman National Debt was suspended. This reacted on Egypt, and Ismail Pasha, who had been lavishly squandering money for the past twelve years, was very anxious to bolster up his credit by meeting the payments due by him in December. But as practically all possible revenues had been hypothecated by Egypt already, the burning question as to how to raise ready money was not easy of solution. It was at this juncture that the brothers Dervieu—Edouard in Paris, and André in Cairo—put forward the suggestion of either lending the Khedive a round sum on the security of his Highness's Suez Canal shares, or, if more satisfactory, of purchasing them outright. Evidently, however, the secret of the offer was not well kept, for the Anglo-Egyptian Bank (then half French, being still under the Pastré influence) heard of the move and made a counter-offer. The 'Anglo' in turn informed the Crédit Foncier de France. Now it did not suit this institution for Ismail to hypothecate or dispose of his shares; they wanted him to offer them as security for the many doubtful promises-to-pay which French bankers then possessed—in other words, the Crédit Foncier desired Ismail to keep the shares in order to facilitate the conversion of his floating debt.

This brings us to the fateful Sunday dinner given in London

by Mr. Henry Oppenheim to the then editor of the *Pall Mall Gazette*. Mr. Oppenheim, being a nephew of the Messrs. Oppenheim, who for many years had a lucrative banking business in Egypt, knew of what was going on in Cairo and Paris, and told the whole story to his guest. Fortunately for England, Mr. Greenwood was not only a shrewd journalist but a man of business, and perceived at once that only prompt action could turn the position. So, with his host's permission, he wrote that evening to the Secretary of State for Foreign Affairs asking for an interview the following day at 10.30 A.M. (an unusually early hour for the Foreign Office).

Nevertheless, the next morning, the 15th of November 1875, Lord Derby was punctual, and heard how very near France had come to acquiring the shares, the possession of which, if the transaction could be arrested by purchase for England, would go far to retrieving the unenviable position into which the British Government had drifted. Here was Great Britain paying four-fifths of the tolls of the Maritime Canal, yet without a single share in the undertaking and without a single representative on the Board of Directors. As a result of the editor's communication, Lord Derby telegraphed to the British agent in Egypt to go immediately to the Khedive, to ask him whether it was true that his Highness was negotiating for the sale of his Canal shares, and not to come away without getting an answer. General Stanton (to whom the present writer acted as private secretary that same year) saw the Khedive and obtained his assurance that all negotiations should be suspended till the evening of the 18th of November, on which date Lord Derby was able to telegraph that 'her Majesty's Government were disposed to purchase his Highness's shares.' In the meantime, Lord Derby had informed the Prime Minister, and Mr. Disraeli (as he then still was) had sent his secretary to the City, and within an hour the house of Rothschild[3] had promised to hold four millions sterling at the disposal of the Prime Minister (though the latter had no tangible security to offer). Barely half an hour before Lord Derby's message as to purchasing the shares could be communicated to the Khedive, a provisional contract, subject to approval in Paris, had been entered into (*and signed*) with the agent of the Dervieu group for an advance to Ismail Pasha of 3,400,000*l.* for three months at 18 per cent. per annum interest, plus ½ per cent. commission. Then came a further complication, for on the 20th of November the French Embassy in London, acting on instructions from M. le Duc Decazes, asked Lord Derby whether her Majesty's Government would have any objection to the sale by the Khedive of his shares in the Suez Canal to the Société Générale, or some other French

[3] The then head of the firm, Baron Nathan de Rothschild, was the original of the character *Sidonia* in Disraeli's *Coningsby*.

company. A most inopportune and awkward request, seeing that the British Government were themselves treating for the same shares. Altogether there was a pretty kettle of fish. However, fortunately for England, the Paris syndicate were unable to secure the necessary 3,400,000*l.* within the period of time granted for ratification before M. Ferdinand Barrot, the Khedive's agent in Paris, of the before-mentioned provisional contract. This inability I believe to have been due almost solely to the stubborn opposition of the Crédit Foncier de France, an opposition prompted by the, to them, solid reasons already noted. And England thus was enabled to acquire all the Khedive's shares, the agreement being signed in Cairo on the 25th of November 1875, and confirmed by Parliament on the 9th of March 1876.

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After the matter was virtually concluded, it was found that instead of 177,642, the number quoted throughout the negotiations, the Khedive held but 176,602 shares; so the purchase-money was reduced from 4,000,000*l.* to 3,976,582*l.* Later on, when the huge boxes of certificates, which had been sent to England in H.M.S. *Malabar*, were delivered to the Bank of England, and the shares controlled, it was found that the numbers of two shares were duplicated. I may here add that Messrs. Rothschild & Co., who technically were supposed to have themselves purchased the shares until the re-purchase by the Government had received the sanction of Parliament, were well remunerated for their promptitude and loyalty, as they charged a commission of 2½ per cent. upon the purchase price and received 5 per cent. interest from the date of the advance until the date of repayment. In the foregoing narrative of the purchase of the shares I purposely omitted, in order not to confuse the issue, to mention the fact that there were no coupons (before July 1894) attached to the shares bought by England, for Ismail had in 1869 bartered away his interest coupons for twenty-five years. To explain this transaction we must once more hark back to the time when the Canal was about to be formally opened. It was a convenient time for a general settlement of accounts, and the Egyptian Government, in return for certain concessions (really retrocessions) and the abandonment of certain 'rights' by the Company, agreed to pay a sum of 1,200,000*l.* But, as Ismail had even then, 1869, no ready-money, he consented, in lieu of payment, to forego in favour of the Company all prospective interest from the 1st of January 1870 to the 1st of July 1894. And this pill was made the more bitter for Ismail to swallow by the decision, taken at the general annual meeting held in August 1871, not to allow holders of shares from which the coupons had been cut off either to vote or even be present at shareholders' meetings. The worried Khedive

protested, but in the end had to be satisfied with an assurance that De Lesseps would himself act as proxy for his Highness. Furthermore, the decision of the 24th of August 1871 was not rescinded, and when in 1876 it was agreed to admit three representatives of Great Britain on the Board, 300 shares, *with coupons attached*, had to be purchased, it being held that the 176,602 mutilated shares would not constitute a legal qualification before 1894.

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The news of the purchase of the Canal shares by England was on the whole favourably received by Europe. Austria was confident that the purchase would prove as advantageous to Austrian as to British commerce, and could, therefore, only look upon it with satisfaction. Germany highly appreciated the policy adopted by her Majesty's Government, who, in Prince Bismarck's opinion, had 'done the right thing at the right moment in regard to the Canal.' Italy, though she thought the news 'had disturbed and disquieted all the Exchanges of Europe' and was 'a proof of the great uncertainties which the Eastern Question occasions,' nevertheless held the purchase to be 'an act of great political ability which does great honour to the perspicacity of Mr. Disraeli's Government.' France, however, 'fut froissée et attristée.' *Le Temps* wrote: 'The English Government had knowledge of the proposed plans in France, it discussed them, it made imperious objections, and then does on its own account what it would not permit the French Government to do,' and *Le Journal des Débats* terminated its article by the exclamation: 'Oh! you French people! how adept you are in pulling chestnuts out of the fire!' And we have it on the authority of Mr. de Blowitz, in *My Memoirs* (published in 1903), that the Duc Decazes, who was playing billiards when he heard the news, in his rage broke his cue across his knees and swore that he would pay out Lord Derby some day. The only man in France who took the matter good-humouredly was the man most interested, Ferdinand de Lesseps. He accepted the inevitable, and wrote:

> The English nation now accepts that share in the Canal Company which had been loyally reserved to her from the outset; and if this action is to have any effect, that effect, in my opinion, can only be the abandonment by the British Government of the long-standing attitude of hostility towards the interests of the original shareholders of the Maritime Canal, whose perseverance has been at once so active and so well-directed. I therefore look upon the close community of interest about to be established between French and English capital, for the purely industrial and necessarily peaceful working of the Universal Maritime Canal, as a most fortunate occurrence.

There is yet another opinion which may be considered interesting, namely, that of the seller. What did he think of the bargain

he had made? Ismail Pasha's own official account, given in response to a telegram from his Suzerain's Grand Vizier, is characteristic :

> Your Highness is aware that at the time of the Constitution of the Canal Company part of the shares were subscribed by the Egyptian Treasury. Up to the present time these shares have never been in any respect or in any manner of the slightest use to the Government, and were, to my great regret, a heavy burthen upon the Treasury. Certain bankers made proposals for the purchase of these shares ; while this sale was being negotiated, the English Government manifested the wish to acquire them on much more advantageous terms, and as these shares are similar to the shares of other companies which are bought and sold daily, the Egyptian Government has sold them to the English Government and has made a profit on the shares, which were their property, and which, as has been said above, were never of any use to them.

Still more characteristically Ismailian, however, is the story of the Khedive's anger when he learned that during the final stage of the negotiations a Court functionary had speculated for a rise in price of Canal shares on the Paris Bourse, and had made money. For Ismail was not angry *with the official* for his action in utilising a State secret to his own advantage, but was furious *with himself* that he, Khedive, had not had the same brilliant idea and in similar fashion netted a goodly profit.

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Although in this paper it was intended only to dwell on side-lights thrown by circumstances on the story of an interesting and successful enterprise, and to set them forth in expository yet easy vein, I feel sure that forgiveness will be extended to me if, in conclusion, I take heart of grace and pen a few sentences in a more serious vein. Does not the undoing of Egypt throughout the history of the Canal, coupled with the open-handed generosity of the Viceroy Saïd and of the Khedive Ismail, merit something more than mere commiseration and grateful acknowledgment? Should we not remember the thousands of lives sacrificed by Egypt from 1859 to 1863 ; and should it not be counted to her for righteousness that, by permitting the piercing of the isthmus, Egypt ungrudgingly yielded up for the general good the transit by railway from Alexandria to Suez of passengers, troops and mails, formerly so remunerative?

Is it of no importance that in 'expensive moments of enthusiasm' Ismail Pasha should have contributed over sixteen millions sterling out of the total of twenty millions expended on the digging of the Canal, and that Egypt should have nothing whatever to show for this expenditure? The only real benefit that ever accrued to Egypt from the Canal was in 1882 when the existence of a channel, navigable by war-vessels and transports, rendered possible the turning of Arabi's position at Kafr Dawar.

The British Government has at last happily determined to substitute a firm policy for the late inherently weak attitude, which has not only been misunderstood throughout Egypt, but has proved calamitous to the best interests of the native Egyptians and to our own prestige. The question of renewing the Canal Concession should and must be considered afresh in Cairo and Paris. At this juncture, therefore, for the reasons given above, and considering that England's Canal shares, *bought from the Khedive*, are to-day worth over thirty millions, and pay her back in interest the whole of the purchase-money each four or five years, I hold, and the belief is strong within me, that Great Britain should make a whole-hearted, sustained, and unselfish effort on Egypt's behalf, and see to it that such really generous treatment is now meted out to her as shall blot out from her memory all painful recollections and all remembrance of past injury, injustice and ill-fortune.

WALTER F. MIÉVILLE.

'HIS PAROCHIAL MAJESTY'

WITH reference to the Article by Mr. P. D. Kenny, which appeared under the above heading in THE NINETEENTH CENTURY AND AFTER for September 1909, the Nuns carrying on a Boarding School at Kiltimagh, Co. Mayo, and the Nuns of the Mount St. Vincent Orphanage and Schools at Limerick, have taken a strong exception to the serious remarks concerning them respectively which appeared in that Article at p. 418.

The Editor desires to say that he had no intention in publishing the Article to charge these Ladies with any improper conduct, or to reflect upon their good intentions and actions, and, much regretting that anything should have appeared in the Review which has caused them pain, he hereby unconditionally withdraws all charges therein contained, which reflect on the character or conduct of these Ladies.

The Editor of THE NINETEENTH CENTURY AND AFTER *cannot undertake to return unaccepted MSS.*